

**CITY OF NEWTON  
PURCHASING DEPARTMENT**

***CONTRACT FOR PUBLIC WORKS DEPARTMENT  
(M.G.L. Ch. 30, §39M)***

**PROJECT MANUAL:  
WASHINGTON STREET AT HARVARD STREET  
INTERSECTION SAFETY IMPROVEMENTS  
*INVITATION FOR BID #17-64***

**Bid Opening Date: February 23, 2017 at 11:00 a.m.**

**FEBRUARY 2017  
Setti D. Warren, Mayor**

**CITY OF NEWTON**  
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**WASHINGTON STREET AT HARVARD STREET INTERSECTION SAFETY IMPROVEMENTS**

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# CITY OF NEWTON, MASSACHUSETTS

## PURCHASING DEPARTMENT

### INVITATION FOR BID #17-64

The City of Newton invites sealed bids in accordance with M.G.L. c.30, §39M from Contractors for:

#### WASHINGTON STREET AT HARVARD STREET INTERSECTION SAFETY IMPROVEMENTS

**Bids will be received until: 11:00 a.m., Thursday, February 23, 2017**

at the Purchasing Department, Room 201, Newton City Hall, 1000 Commonwealth Avenue, Newton, MA 02459. Bids will not be accepted nor may submitted bids be corrected, modified or withdrawn after the deadline for bids. Immediately following the deadline for bids, all bids received within the time specified will be publicly opened and read aloud.

**The work under this Contract consists of furnishing all necessary labor, materials and equipment required for traffic signal installation and roadway improvements at the Washington Street at Harvard Street intersection in the City of Newton, Massachusetts. The work includes mill and overlay of the existing roadway pavement with hot mix asphalt, installation of new curb extensions with granite curb, new cement concrete sidewalk and curb ramps, installation of new traffic signals, signs and pavement markings, and other miscellaneous items of work as shown on the plans and described herein.**

**This project is not being funded with M.G.L. c. 90 monies, so Massachusetts Department of Transportation (MassDOT) prequalification is not required.**

Even though this is not a MassDOT project, **the bid document is based on MassDOT standards.** There are in the Item Sheets at pp. 76-86 below many pay items that are standard so do not need a spec since one is provided in the MassDOT Standard Specifications: **If an Item does not have a corresponding Scope of Work, the MassDOT Standard Specifications for Highways and Bridges shall apply.**<sup>1</sup>

Documents relating to this Invitation For Bids (IFB or Contract Documents) will be available online at [www.newtonma.gov/bids](http://www.newtonma.gov/bids) or by pick up at the Purchasing Department after **10:00 a.m., February 9, 2017**. Bids must be submitted with **one Original and two Copies**.

A bid deposit in an amount that is not less than five percent (5%) of the value of the bid, including all add alternates, is required. Bid deposits, payable to the City of Newton, shall be either in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submission date. **Be advised that to the extent permitted by the law the City will retain all bid deposits for withdrawn bids.**

**The costs of any bond and any insurance required in this IFB are the responsibility of the bidder; such costs will not be reimbursed by City and should be included in your bid.**

The City of Newton will award the contract to the lowest eligible and responsible bidder. Please note: this bid, in accordance with the Chapter 303 Acts of 2008, contains Price Adjustments and new Prevailing Wage requirements. All bidders are required to familiarize themselves with these terms and conditions before submitting a bid.

**Anticipated start date is April 1, 2017. Required deadline for substantial completion is June 30, 2017.**

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<sup>1</sup> There are some items that may be covered in MassDOT Standard Specifications but still require some additional clarification. And there are some items that are not covered in the Standard Specs and require a full description. We have provided specs for both of these types of items. Anything with an “\*” next to the bid tab Item has a spec provided.”

All bids are subject to the provisions of M.G.L. c.30, §39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. c.149, §26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addition, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests. The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual. The successful bidder will be required to furnish a **Labor and Materials Payment Bond** in the amount of **50%** of the contract total. Wages are paid to drivers for all “on-site” work.

Once you’ve downloaded this bid from the internet website ([www.newtonma.gov/bids](http://www.newtonma.gov/bids)) it is strongly suggested that you email ([purchasing@newtonma.gov](mailto:purchasing@newtonma.gov)) your company’s Name, address, EMAIL, phone, fax AND the INVITATION FOR BID NUMBER and Project Title, so that we may add you to the Bidders’ List and you will be notified of any/all addenda.

The City will reject any and all bids in accordance with the above referenced General Laws. In addition, the City reserves the right to waive minor informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

In the event that any person wishes to attend a bid opening or pre-bid meeting, accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a reasonable accommodation, please contact the city of Newton’s ADA Coordinator, Jini Fairley, at least two business days in advance of the meeting: [jfairley@newtonma.gov](mailto:jfairley@newtonma.gov) or (617) 796-1253. For Telecommunications Relay Service, please dial 711.

CITY OF NEWTON

A handwritten signature in black ink that reads "Nicholas Read". The signature is stylized with a large, looped "N" and a cursive "Read".

Nicholas Read

*Chief Procurement Officer*

February 9, 2017

**CITY OF NEWTON**  
**DEPARTMENT OF PURCHASING**  
**INSTRUCTIONS TO BIDDERS**

**ARTICLE 1 - BIDDER'S REPRESENTATION**

- 1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid (hereinafter called "bid") represents that:
1. The Bidder has read and understands the Bidding Documents, Contract Forms, General Conditions, Conditions of the Contract, General Requirements and Project Specification (collectively, referred to as the "Contract Documents") and the bid is made in accordance therewith.
  2. The Bidder has visited the work site and is familiar with the local conditions under which the work has to be performed.
- 1.2 Failure to so examine the Contract Documents and work site will not relieve any Bidder from any obligation under the bid as submitted.

**ARTICLE 2 - REQUEST FOR INTERPRETATION**

- 2.1 Bidders shall promptly notify the City of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the *Chief Procurement Officer*, at [purchasing@newtonma.gov](mailto:purchasing@newtonma.gov) or via facsimile (617) 796-1227. The City will answer such requests if received **by Friday, February 17, 2017** at 12:00 noon.
- 2.3 Interpretation, correction, or change in the Contract Documents will be made by Addendum which will become part of the Contract Documents. The City will not be held accountable for any oral instruction.
- 2.4 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents.
- 2.5 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at [www.newtonma.gov/bids](http://www.newtonma.gov/bids).
- 2.6 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the bidding process.
- 2.7 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes themselves known to the Purchasing Department, at [purchasing@newtonma.gov](mailto:purchasing@newtonma.gov) or via facsimile (617) 796-1227, they shall be placed on the bidder's list. Bidders must provide the Purchasing Department with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #17-64**.

**ARTICLE 3 - MBE PARTICIPATION**

- 3.1 Notice is hereby given that the Mayor's Affirmative Action Plan for the City of Newton in effect at the time of this solicitation is applicable to all construction contracts in excess of \$10,000.00.
- 3.2 Notice is hereby given that the City of Newton Minority/Women Business Enterprise Plan and the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program in effect at the time of this solicitation are applicable to all City contracts for goods and services in excess of \$50,000.00.
- 3.3 Copies of the Plans and Program referred to in Sections 3.1 and 3.2 are available at: [www.newtonma.gov/purchasing](http://www.newtonma.gov/purchasing).

## ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

- 4.1 Bids shall be submitted on the "Bid Form #17-64," attached.
- 4.2 All entries on the Bid Form shall be made by typewriter or in ink.
- 4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.
- 4.4 Bid Deposits shall be submitted in the amount specified in the IFB. They shall be made payable to the City and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submission date. **Bid advised that to the extent permitted by law the City will retain all bid deposits for withdrawn bids.**
- Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the City/Contractor agreement.
- 4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:
- \* GENERAL BID FOR: **#17-64**
  - \* NAME OF PROJECT: **Washington Street at Harvard Street Intersection Safety Improvements**
  - \* BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER
- 4.6 Date and time for receipt of bids is set forth in the IFB.
- 4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder. In the event that Newton City Hall is closed on the date or at the time that bids are due, the date and time for receipt of bids shall be on the next business day following that the Newton City Hall and the Purchasing Department are open.
- 4.8 Bids shall be submitted with one original and one copy. Be advised that a new Massachusetts law has been enacted that required all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004, which will become effective July 1, 2006.
1. This requirement will apply to any general bid or sub bid submitted on or after July 1, 2006 and to any contract awarded on or after July 1, 2006.
  2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
  3. The contractor and all subcontractors on this project will be required to provide certification of compliance with this requirement. Non-compliance with this new Massachusetts Law will disqualify you from bidding on public contracts.

## ARTICLE 5 - ALTERNATES

- 5.1 Each Bidder shall acknowledge Alternates (if any) in Section C on the Bid Form.
- 5.2 In the event an Alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that Alternate.
- 5.3 Bidders shall enter on the Bid Form a single amount for each Alternate which shall consist of the amount for work performed by the Contractor.
- 5.4 The low Bidder will be determined on the basis of the sum of the base bid, excluding alternates.

## ARTICLE 6 - WITHDRAWAL OF BIDS

- 6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or electronic request. Electronic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.

- 6.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.
- 6.3 No bids shall be withdrawn within thirty days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

#### ARTICLE 7 - CONTRACT AWARD

- 7.1 The City is soliciting a price for all necessary labor, materials and equipment required for roadway and traffic signal improvements at the Washington Street and Harvard Street intersection based on the item costs set forth in the Item Sheets at pp. 76-86 below. It is the City's intent to award one (1) contract responsive and eligible bidder offering the lowest Total Bid Price. A contract will be awarded within sixty (60) days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.
- 7.2 The City of Newton reserves the right to waive minor informalities in or to reject any or all Bids if it be in the public interest to do so.
- 7.3 The City reserves the right to reject any bidder who has failed to pay any local taxes, fees, assessments, betterments, or any other municipal charge, unless the bidder has a pending abatement application or has entered into a payment agreement with the collector-treasurer.
- 7.4 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who has met all the requirements of the invitation for bids; (3) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (4) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder.
- 7.5 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a Contract in the form included in the Contract Documents in such number of counterparts as the City may require.
- 7.6 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process chosen by the City such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

## ARTICLE 8 - TAXES

- 8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.
- 8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

## ARTICLE 9 – PROPRIETARY SPECIFICATIONS

- 9.1 The City has used a proprietary specification to describe the supply listed in the specifications. Such specifications are permitted under M.G.L. c. 30, §39M(b), provided that the City state in writing that use of the proprietary specification is in its best interest and that it will accept an “equal” of the item specified. An item is considered equal if (i) it is at least equal in quality, durability, appearance, strength, and design; (ii) will perform the intended function at least equally; and (iii) conforms substantially, even with deviations, to the detailed requirements contained in the specifications. Bidders wishing to provide an equal item should do so with their bids. The City shall have the sole right to determine whether or not said item is equal.
- 9.2 The required determination and justification have been duly prepared, and a copy may be requested in accordance with the Massachusetts Public Records Law, M.G.L. c. 66, §10.

## ARTICLE 10 – ENVIRONMENTALLY PREFERABLE PRODUCTS

- 10.1 The City encourages environmentally preferable products, i.e., products or services that have less negative or more positive effects on human health and the environment when compared with competing products or services that serve the same purpose. The city encourages bidders to describe, in the space provided on the Bid Form, the environmental attributes of its goods or services throughout the entire life-cycle, including manufacture, use and disposition. This information may include multiple environmental considerations such as natural resource use, recycled content, energy and water efficiency, greenhouse gas emissions, impact on climate change, packaging, hazardous material use, and health and safety impacts on workers, consumers and the community. If you do not currently assess such attributes, please indicate that. However you respond, the City will not take your information into account in evaluating bid proposals.
- 10.2 Bidders are encouraged also to provide information related to steps they take internally to (a) identify any positive or negative environmental attributes of products or services they offer, as specified above, and (b) insure that those attributes are being addressed as part of operations.

## END OF SECTION



**CITY OF NEWTON  
DEPARTMENT OF PURCHASING  
BID FORM #17-64**

- A. The undersigned proposes to supply and deliver the materials specified below in full accordance with the Contract Documents and Project Manual supplied by the City of Newton entitled:

**WASHINGTON STREET AT HARVARD STREET INTERSECTION SAFETY IMPROVEMENTS**

for the contract price specified below, subject to additions and deduction according to the terms of the specifications.

- B. This bid includes addenda number(s)\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_,\_\_\_\_\_.

- C. The Contractor shall insert prices for each item in ink, in both words and figures.

The proposed Total Bid Price (Items on pp. 76-86) is:

Dollars (\$\_\_\_\_\_)

(Contract amount shall equal the Total Bid Price at Item Sheet p. 86 attached hereto.)

COMPANY NAME: \_\_\_\_\_

- D. The undersigned has completed and submits herewith the following documents:

Bidder's Qualifications and References Form, 2 pages

Signed Bid Form, 2 pages

Item Sheets, 11 pages

Certificate of Non-Collusion, 1 page

Debarment Letter, 1 page

IRS Form W-9, 1 page

A five percent (5%) bid deposit

- E. Prompt Payment Discounts. Bidders are encouraged to offer discounts in exchange for an expedited payment. Payments may be issued earlier than the general goal of within 30 days of receipt of the invoice only when in exchange for discounted prices. Discounts will not be considered in determining the lowest responsible bidder.

Prompt Payment Discount\_\_\_\_\_ % \_\_\_\_\_ Days

Prompt Payment Discount\_\_\_\_\_ % \_\_\_\_\_ Days

Prompt Payment Discount\_\_\_\_\_ % \_\_\_\_\_ Days

- F. Environmentally preferable products information (which is requested but which will not be considered in awarding a contract):

Description of environmental attributes of Bidder's goods or services:

Steps taken to (a) identify any positive or negative environmental attributes of products or services and (b) insure that those attributes are being addressed as part of operations:

- G.** The undersigned agrees that, if selected as general contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the City of Newton, execute a contract in accordance with the terms of this bid **and furnish a labor and materials payment bond** of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the City of Newton in the **sum not less than 50% of the contract price**, the premiums for which are to be paid by the contractor and are included in the contract price.

The undersigned hereby certifies that s/he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of M.G.L. c.30, §39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration ("OSHA") that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

The undersigned further certifies under the penalties of perjury that they have familiarized themselves with the changes to the Prevailing Wage Rates, Price Adjustment Clauses, in accordance to Chapter 303 Acts of 2008.

- H.** Environmentally preferable products information (which is requested but which will not be considered in awarding a contract):

Description of environmental attributes of Bidder's goods or services:

Steps taken to (a) identify any positive or negative environmental attributes of products or services and (b) insure that those attributes are being addressed as part of operations:

Date \_\_\_\_\_

(Name of General Bidder) \_\_\_\_\_

BY: \_\_\_\_\_

(Printed Name and Title of Signatory) \_\_\_\_\_

(Business Address) \_\_\_\_\_

(City, State Zip) \_\_\_\_\_ / \_\_\_\_\_

(Telephone/Email) \_\_\_\_\_

**NOTE:** If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

## CITY OF NEWTON

### BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City of Newton for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: \_\_\_\_\_
2. WHEN ORGANIZED: \_\_\_\_\_
3. INCORPORATED? \_\_\_\_\_ YES \_\_\_\_\_ NO DATE AND STATE OF INCORPORATION: \_\_\_\_\_
4. IS YOUR BUSINESS A **MBE**? \_\_\_\_\_ YES \_\_\_\_\_ NO **WBE**? \_\_\_\_\_ YES \_\_\_\_\_ NO or **MWBE**? \_\_\_\_\_ YES \_\_\_\_\_ NO
- \* 5. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- \* 6. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?  
\_\_\_\_\_ YES \_\_\_\_\_ NO  
IF YES, WHERE AND WHY?  
\_\_\_\_\_  
\_\_\_\_\_
- \* 7. HAVE YOU EVER DEFAULTED ON A CONTRACT? \_\_\_\_\_ YES \_\_\_\_\_ NO  
IF YES, PROVIDE DETAILS.  
\_\_\_\_\_  
\_\_\_\_\_
- \* 8. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- \* 9. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.  
  
PROJECT \_\_\_\_\_ NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_

PUBLICLY BID? \_\_\_\_\_ YES \_\_\_\_\_ NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: ( ) \_\_\_\_\_  
CONTACT PERSON'S RELATION TO PROJECT?: \_\_\_\_\_  
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLCY BID? \_\_\_\_\_ YES \_\_\_\_\_ NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: ( ) \_\_\_\_\_  
CONTACT PERSON'S RELATION TO PROJECT?: \_\_\_\_\_  
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLCY BID? \_\_\_\_\_ YES \_\_\_\_\_ NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: ( ) \_\_\_\_\_  
CONTACT PERSON'S RELATION TO PROJECT?: \_\_\_\_\_  
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLCY BID? \_\_\_\_\_ YES \_\_\_\_\_ NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: ( ) \_\_\_\_\_  
CONTACT PERSON'S RELATION TO PROJECT?: \_\_\_\_\_  
(i.e., contract manager, purchasing agent, etc.)

10. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Newton in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: \_\_\_\_\_ BIDDER: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_

**END OF SECTION**

## **CERTIFICATE OF NON-COLLUSION**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee club, or other organization, entity, or group or individuals.

\_\_\_\_\_  
(Signature of individual)

\_\_\_\_\_  
Name of Business

City of Newton



Mayor  
Setti D. Warren

**Purchasing Department**

Nicholas Read ☐ *Chief Procurement Officer*  
1000 Commonwealth Avenue  
Newton Centre, MA 02459-1449  
purchasing@newtonma.gov

Telephone  
(617) 796-1220  
Fax:  
(617) 796-1227  
TDD/TTY  
(617) 796-1089

Date \_\_\_\_\_

Vendor \_\_\_\_\_

Re: Debarment Letter for Invitation For Bid #17-64

As a potential vendor on the above contract, the City requires that you provide a debarment/suspension certification indicating that you are in compliance with the below Federal Executive Order. Certification can be done by completing and signing this form.

**Debarment:**

**Federal Executive Order (E.O.) 12549 “Debarment and Suspension“ requires that all contractors receiving individual awards, using federal funds, and all sub-recipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government.**

I hereby certify under pains and penalties of perjury that neither I nor any principal(s) of the Company identified below is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

\_\_\_\_\_(Name)  
\_\_\_\_\_(Company)  
\_\_\_\_\_(Address)  
\_\_\_\_\_(Address)  
PHONE \_\_\_\_\_ FAX \_\_\_\_\_  
EMAIL \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

If you have questions, please contact Nicholas Read, Chief Procurement Officer at (617) 796-1220.

**Request for Taxpayer  
Identification Number and Certification**

Give form to the  
requester. Do not  
send to the IRS.

Print or type  
See Specific instructions on page 2.

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership  
☐ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ .....  
☐ Other (see instructions) ▶

☒ Exempt  
payee

Address (number, street, and apt)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

**Part I Taxpayer Identification Number (TIN)**

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number

or

**Note.** If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

**Part II Certification**

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

**Sign  
Here**

Signature of  
U.S. person ▶

Date ▶

Name

**General Instructions**

Section references are to the Internal Revenue Code unless otherwise noted.

**Purpose of Form**

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

**Note.** If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

## **CONTRACT FORMS**

The awarded bidder will be required to complete and submit documents substantially similar in form to the following.

These forms may need to be modified on account of changed circumstances, and are provided for informational purposes only.



# CITY - CONTRACTOR AGREEMENT

## CONTRACT NO. C -

THIS AGREEMENT made this \_\_\_\_ day of \_\_\_\_\_ in the year Two Thousand and Seventeen by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and hereinafter referred to as the CONTRACTOR.

The parties hereto for the considerations hereinafter set forth agree as follows:

**ARTICLE 1. STATEMENT OF WORK.** The Contractor shall furnish all labor, materials, and equipment and perform all work required in strict accordance with the Contract Documents for the following project:

### WASHINGTON STREET AT HARVARD STREET INTERSECTION SAFETY IMPROVEMENTS

**ARTICLE 2. TIME OF COMPLETION.** The Contractor shall commence work under this Contract on the date specified in the written notice of the City to proceed and shall fully complete all work hereunder within the time specified in the Summary of Work and Specific Work Requirements of the Project Manual. **Anticipated Start Date is April 1, 2017. Time for substantial completion is June 30, 2017.** Failure to complete within the time specified shall be subject to the assessment of liquidated damages in accordance with the provisions contained in the Project Manual.

**ARTICLE 3. THE CONTRACT PRICE.** The City shall pay the Contractor for the full and satisfactory performance of the Contract, in current funds a sum not to exceed:

( \$ )

**ARTICLE 4. CONTRACT DOCUMENTS.** The Contract Documents consist of the following documents which are either attached to this Agreement or are incorporated herein by reference:

- a. This CITY-CONTRACTOR Agreement;
- b. The City's Invitation For Bid #17-64 issued by the Purchasing Department;
- c. The Project Manual for: **WASHINGTON STREET AT HARVARD STREET INTERSECTION SAFETY IMPROVEMENTS** including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;
- d. Addenda Number(s) \_\_\_\_\_;
- e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;
- f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;
- g. Duly authorized and executed Amendments, Change Orders or Shipping Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR.

**ARTICLE 5. ALTERNATES.** The following Alternates have been accepted and their costs are included in the Contract Price stated in Article 3 of this Agreement:

Alternates: \_\_\_\_\_

**ARTICLE 6. APPLICABLE STATUTES.** All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

**CONTRACTOR**

By \_\_\_\_\_

Print Name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

*Affix Corporate Seal Here*

City funds are available in the following accounts:

34D401G-520203 -  
34D501B-5795 -

I further certify that the Mayor, or his designee, is authorized to execute contracts and approve change orders.

By \_\_\_\_\_  
*Comptroller of Accounts*

Date \_\_\_\_\_

**CITY OF NEWTON**

By \_\_\_\_\_  
*Chief Procurement Officer*

Date \_\_\_\_\_

By \_\_\_\_\_  
*Commissioner of Public Works*

Date \_\_\_\_\_

Approved as to Legal Form and Character

By \_\_\_\_\_  
*Associate City Solicitor*

Date \_\_\_\_\_

**CONTRACT & BONDS ARE APPROVED**

By \_\_\_\_\_  
*Mayor or his designee*

Date \_\_\_\_\_

## CERTIFICATE OF AUTHORITY - CORPORATE

1. I hereby certify that I am the Clerk/Secretary of \_\_\_\_\_  
(insert full name of Corporation)
2. corporation, and that \_\_\_\_\_  
(insert the name of officer who signed the **contract and bonds.**)
3. is the duly elected \_\_\_\_\_  
(insert the title of the officer in line 2)
4. of said corporation, and that on \_\_\_\_\_  
(insert a date that is ***ON OR BEFORE*** the date the officer signed the **contract and bonds.**)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

5. \_\_\_\_\_ the \_\_\_\_\_  
(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

6. ATTEST: \_\_\_\_\_ *AFFIX CORPORATE*  
(Signature of **Clerk or Secretary**)\* *SEAL HERE*
7. Name: \_\_\_\_\_  
(Please print or type name in line 6)\*
8. Date: \_\_\_\_\_  
(insert a date that is ***ON OR AFTER*** the date the officer signed the **contract and bonds.**)

\* The name and signature inserted in lines 6 & 7 **must** be that of the **Clerk or Secretary** of the corporation.

## CERTIFICATION OF TAX COMPLIANCE

Pursuant to M.G.L. c.62C, §49A and requirements of the City, the undersigned acting on behalf of the Contractor certifies under the penalties of perjury that the Contractor is in compliance with all laws of the Commonwealth relating to taxes including payment of all local taxes, fees, assessments, betterments and any other local or municipal charges (unless the Contractor has a pending abatement application or has entered into a payment agreement with the entity to which such charges were owed), reporting of employees and contractors, and withholding and remitting child support.\*

\_\_\_\_\_  
\*\*Signature of Individual  
or Corporate Contractor (Mandatory)

Print Name: \_\_\_\_\_

By: \_\_\_\_\_  
Corporate Officer  
(Mandatory, if applicable)

Print Name: \_\_\_\_\_

\_\_\_\_\_  
\*\*\* Contractor's Social Security Number  
(Voluntary) or Federal Identification Number

Date: \_\_\_\_\_

\* The provision in this Certification relating to child support applies only when the Contractor is an individual.

\*\* Approval of a contract or other agreement will not be granted until the City receives a signed copy of this Certification.

\*\*\* Your social security number may be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended.

# CITY OF NEWTON, MASSACHUSETTS

## PAYMENT BOND

Know All Men By These Presents:

That we, \_\_\_\_\_, as PRINCIPAL, and \_\_\_\_\_, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of \_\_\_\_\_ dollars (\$ \_\_\_\_\_) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of \_\_\_\_\_, 2017 for the construction of \_\_\_\_\_ in Newton, Massachusetts.  
(Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this \_\_\_\_ day of \_\_\_\_ 2017.

PRINCIPAL

SURETY

\_\_\_\_\_  
BY \_\_\_\_\_

\_\_\_\_\_  
BY \_\_\_\_\_

(SEAL)

(ATTORNEY-IN-FACT) (SEAL)

\_\_\_\_\_  
(Title)

ATTEST: \_\_\_\_\_

ATTEST: \_\_\_\_\_

## CITY OF NEWTON

### WAGE RATE REQUIREMENTS

#### 1. GENERAL

- A. This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.
- B. Other duties and requirements of law which may not be specified in this section apply and are inherently a part of the Contract.

#### 2. WAGE RATES

- A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.
- B. Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.
- C. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.
- D. Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.
- E. **The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits in pdf format verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.** The Contractor is obligated to provide such records to the City directly on a weekly basis. The City may assess a penalty of \$100 for each day beyond the required submission date that such records are received, which amount shall be deducted from any amounts to the Contractor from the City. In the event of chronic late submissions, the City shall report the same to the Office of the Attorney General.
- F. The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.
- G. The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter.

**END OF SECTION**



CHARLES D. BAKER  
Governor

KARYN E. POLITO  
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT  
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

RONALD L. WALKER, II  
Secretary  
WILLIAM D. MCKINNEY  
Director

Awarding Authority: City of Newton  
Contract Number: #17-64 City/Town: NEWTON  
Description of Work: Washington at Harvard Signalization Project  
Job Location: Various Locations

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Issue Date: 02/02/2017

Wage Request Number: 20170202-050

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR LABORERS - ZONE 1	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/01/2016	\$33.90	\$11.50	\$7.10	\$0.00	\$52.50
	06/01/2017	\$34.90	\$11.50	\$7.10	\$0.00	\$53.50
	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Issue Date: 02/02/2017

Wage Request Number: 20170202-050

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
LABORERS - ZONE 1	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60

For apprentice rates see "Apprentice- LABORER"

BOILER MAKER	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10
BOILERMAKERS LOCAL 29						

**Apprentice - BOILERMAKER - Local 29**

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2017	\$50.76	\$10.18	\$19.79	\$0.00	\$80.73
BRICKLAYERS LOCAL 3 (NEWTON)	03/01/2017	\$50.76	\$10.75	\$19.22	\$0.00	\$80.73

Issue Date: 02/02/2017

Wage Request Number: 20170202-050

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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Newton

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.38	\$10.18	\$19.79	\$0.00	\$55.35
2	60	\$30.46	\$10.18	\$19.79	\$0.00	\$60.43
3	70	\$35.53	\$10.18	\$19.79	\$0.00	\$65.50
4	80	\$40.61	\$10.18	\$19.79	\$0.00	\$70.58
5	90	\$45.68	\$10.18	\$19.79	\$0.00	\$75.65

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.38	\$10.75	\$19.22	\$0.00	\$55.35
2	60	\$30.46	\$10.75	\$19.22	\$0.00	\$60.43
3	70	\$35.53	\$10.75	\$19.22	\$0.00	\$65.50
4	80	\$40.61	\$10.75	\$19.22	\$0.00	\$70.58
5	90	\$45.68	\$10.75	\$19.22	\$0.00	\$75.65

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2016	\$37.45	\$7.60	\$14.35	\$0.00	\$59.40
LABORERS - FOUNDATION AND MARINE						
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
LABORERS - FOUNDATION AND MARINE						
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
LABORERS - FOUNDATION AND MARINE						
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER	09/01/2016	\$37.80	\$9.90	\$17.00	\$0.00	\$64.70
CARPENTERS -ZONE 2 (Eastern Massachusetts)	03/01/2017	\$38.77	\$9.90	\$17.00	\$0.00	\$65.67
	09/01/2017	\$39.78	\$9.90	\$17.00	\$0.00	\$66.68
	03/01/2018	\$40.78	\$9.90	\$17.00	\$0.00	\$67.68
	09/01/2018	\$41.82	\$9.90	\$17.00	\$0.00	\$68.72
	03/01/2019	\$42.85	\$9.90	\$17.00	\$0.00	\$69.75

**Apprentice - CARPENTER - Zone 2 Eastern MA**

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.90	\$9.90	\$1.63	\$0.00	\$30.43
2	60	\$22.68	\$9.90	\$1.63	\$0.00	\$34.21
3	70	\$26.46	\$9.90	\$12.11	\$0.00	\$48.47
4	75	\$28.35	\$9.90	\$12.11	\$0.00	\$50.36
5	80	\$30.24	\$9.90	\$13.74	\$0.00	\$53.88
6	80	\$30.24	\$9.90	\$13.74	\$0.00	\$53.88
7	90	\$34.02	\$9.90	\$15.37	\$0.00	\$59.29
8	90	\$34.02	\$9.90	\$15.37	\$0.00	\$59.29

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$9.90	\$1.63	\$0.00	\$30.92
2	60	\$23.26	\$9.90	\$1.63	\$0.00	\$34.79
3	70	\$27.14	\$9.90	\$12.11	\$0.00	\$49.15
4	75	\$29.08	\$9.90	\$12.11	\$0.00	\$51.09
5	80	\$31.02	\$9.90	\$13.74	\$0.00	\$54.66
6	80	\$31.02	\$9.90	\$13.74	\$0.00	\$54.66
7	90	\$34.89	\$9.90	\$15.37	\$0.00	\$60.16
8	90	\$34.89	\$9.90	\$15.37	\$0.00	\$60.16

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	01/01/2017	\$45.67	\$12.20	\$19.41	\$1.30	\$78.58
BRICKLAYERS LOCAL 3 (NEWTON)	07/01/2017	\$46.30	\$12.20	\$19.41	\$1.30	\$79.21
	01/01/2018	\$46.54	\$12.20	\$19.41	\$1.30	\$79.45
	07/01/2018	\$46.79	\$12.20	\$19.41	\$1.30	\$79.70
	01/01/2019	\$47.03	\$12.20	\$19.41	\$1.30	\$79.94
	07/01/2019	\$47.27	\$12.20	\$19.41	\$1.30	\$80.18
	01/01/2020	\$47.52	\$12.20	\$19.41	\$1.30	\$80.43

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**Classification**

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

**Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Newton)**

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.84	\$12.20	\$12.41	\$0.00	\$47.45
2	60	\$27.40	\$12.20	\$14.41	\$1.30	\$55.31
3	65	\$29.69	\$12.20	\$15.41	\$1.30	\$58.60
4	70	\$31.97	\$12.20	\$16.41	\$1.30	\$61.88
5	75	\$34.25	\$12.20	\$17.41	\$1.30	\$65.16
6	80	\$36.54	\$12.20	\$18.41	\$1.30	\$68.45
7	90	\$41.10	\$12.20	\$19.41	\$1.30	\$74.01

Effective Date - 07/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.15	\$12.20	\$12.41	\$0.00	\$47.76
2	60	\$27.78	\$12.20	\$14.41	\$1.30	\$55.69
3	65	\$30.10	\$12.20	\$15.41	\$1.30	\$59.01
4	70	\$32.41	\$12.20	\$16.41	\$1.30	\$62.32
5	75	\$34.73	\$12.20	\$17.41	\$1.30	\$65.64
6	80	\$37.04	\$12.20	\$18.41	\$1.30	\$68.95
7	90	\$41.67	\$12.20	\$19.41	\$1.30	\$74.58

**Notes:**

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2016	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
	12/01/2017	\$48.38	\$10.00	\$15.25	\$0.00	\$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
PAINTERS LOCAL 35 - ZONE 2						

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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice- PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
LABORERS - ZONE 1	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR	12/01/2016	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
LABORERS - ZONE 1	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS	12/01/2016	\$37.25	\$7.60	\$14.15	\$0.00	\$59.00
LABORERS - ZONE 1	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75

For apprentice rates see "Apprentice- LABORER"

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$37.25	\$7.60	\$14.15	\$0.00	\$59.00
	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	09/01/2016	\$47.13	\$13.00	\$17.41	\$0.00	\$77.54
	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ELECTRICIAN	09/01/2016	\$47.13	\$13.00	\$17.41	\$0.00	\$77.54
ELECTRICIANS LOCAL 103	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46

**Apprentice - ELECTRICIAN - Local 103**

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.85	\$13.00	\$0.57	\$0.00	\$32.42
2	40	\$18.85	\$13.00	\$0.57	\$0.00	\$32.42
3	45	\$21.21	\$13.00	\$13.36	\$0.00	\$47.57
4	45	\$21.21	\$13.00	\$13.36	\$0.00	\$47.57
5	50	\$23.57	\$13.00	\$13.73	\$0.00	\$50.30
6	55	\$25.92	\$13.00	\$14.09	\$0.00	\$53.01
7	60	\$28.28	\$13.00	\$14.46	\$0.00	\$55.74
8	65	\$30.63	\$13.00	\$14.83	\$0.00	\$58.46
9	70	\$32.99	\$13.00	\$15.20	\$0.00	\$61.19
10	75	\$35.35	\$13.00	\$15.57	\$0.00	\$63.92

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
2	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
3	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
4	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
5	50	\$24.17	\$13.00	\$13.75	\$0.00	\$50.92
6	55	\$26.58	\$13.00	\$14.11	\$0.00	\$53.69
7	60	\$29.00	\$13.00	\$14.48	\$0.00	\$56.48
8	65	\$31.41	\$13.00	\$14.85	\$0.00	\$59.26
9	70	\$33.83	\$13.00	\$15.22	\$0.00	\$62.05
10	75	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85

Notes :  
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3\*\*\*

ELEVATOR CONSTRUCTOR	01/01/2017	\$55.86	\$15.28	\$15.71	\$0.00	\$86.85
ELEVATOR CONSTRUCTORS LOCAL 4						

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## Classification

Effective Date Base Wage Health Pension Supplemental  
Unemployment Total Rate

## Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

## Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2016	\$41.37	\$10.00	\$15.15	\$0.00	\$66.52
	05/01/2017	\$42.25	\$10.00	\$15.15	\$0.00	\$67.40
	11/01/2017	\$42.98	\$10.00	\$15.15	\$0.00	\$68.13
	05/01/2018	\$43.69	\$10.00	\$15.15	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2016	\$42.82	\$10.00	\$15.15	\$0.00	\$67.97
	05/01/2017	\$43.71	\$10.00	\$15.15	\$0.00	\$68.86
	11/01/2017	\$44.44	\$10.00	\$15.15	\$0.00	\$69.59
	05/01/2018	\$45.16	\$10.00	\$15.15	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2016	\$21.98	\$10.00	\$15.15	\$0.00	\$47.13
	05/01/2017	\$22.51	\$10.00	\$15.15	\$0.00	\$47.66
	11/01/2017	\$22.93	\$10.00	\$15.15	\$0.00	\$48.08
	05/01/2018	\$23.36	\$10.00	\$15.15	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103	09/01/2016	\$47.13	\$13.00	\$17.41	\$0.00	\$77.54
	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2016	\$35.35	\$13.00	\$15.57	\$0.00	\$63.92
<i>LOCAL 103</i>	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$37.65	\$10.00	\$15.25	\$0.00	\$62.90
	06/01/2017	\$38.49	\$10.00	\$15.25	\$0.00	\$63.74
	12/01/2017	\$39.32	\$10.00	\$15.25	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2016	\$20.50	\$7.60	\$14.15	\$0.00	\$42.25
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

**Apprentice - FLOORCOVERER - Local 2168 Zone 1**

**Effective Date - 03/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

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Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

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## Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

## Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.96	\$10.00	\$0.00	\$0.00	\$34.96
2	60	\$27.23	\$10.00	\$15.25	\$0.00	\$52.48
3	65	\$29.50	\$10.00	\$15.25	\$0.00	\$54.75
4	70	\$31.77	\$10.00	\$15.25	\$0.00	\$57.02
5	75	\$34.04	\$10.00	\$15.25	\$0.00	\$59.29
6	80	\$36.30	\$10.00	\$15.25	\$0.00	\$61.55
7	85	\$38.57	\$10.00	\$15.25	\$0.00	\$63.82
8	90	\$40.84	\$10.00	\$15.25	\$0.00	\$66.09

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$25.51	\$10.00	\$0.00	\$0.00	\$35.51
2	60	\$27.83	\$10.00	\$15.25	\$0.00	\$53.08
3	65	\$30.15	\$10.00	\$15.25	\$0.00	\$55.40
4	70	\$32.47	\$10.00	\$15.25	\$0.00	\$57.72
5	75	\$34.79	\$10.00	\$15.25	\$0.00	\$60.04
6	80	\$37.10	\$10.00	\$15.25	\$0.00	\$62.35
7	85	\$39.42	\$10.00	\$15.25	\$0.00	\$64.67
8	90	\$41.74	\$10.00	\$15.25	\$0.00	\$66.99

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK)	02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
SHEETMETAL WORKERS LOCAL 17 - A	08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
	02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS)	09/01/2016	\$47.13	\$13.00	\$17.41	\$0.00	\$77.54
ELECTRICIANS LOCAL 103	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR)	02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
SHEETMETAL WORKERS LOCAL 17 - A	08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
	02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER)	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC PIPEFITTERS LOCAL 537	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS LABORERS - ZONE 1	12/01/2016	\$37.10	\$7.60	\$14.15	\$0.00	\$58.85
	06/01/2017	\$38.10	\$7.60	\$14.15	\$0.00	\$59.85
	12/01/2017	\$38.95	\$7.60	\$14.15	\$0.00	\$60.70
	06/01/2018	\$39.90	\$7.60	\$14.15	\$0.00	\$61.65
	12/01/2018	\$40.85	\$7.60	\$14.15	\$0.00	\$62.60
	06/01/2019	\$41.85	\$7.60	\$14.15	\$0.00	\$63.60
	12/01/2019	\$42.85	\$7.60	\$14.15	\$0.00	\$64.60
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2016	\$45.09	\$11.75	\$14.20	\$0.00	\$71.04
	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.55	\$11.75	\$10.45	\$0.00	\$44.75
2	60	\$27.05	\$11.75	\$11.20	\$0.00	\$50.00
3	70	\$31.56	\$11.75	\$11.95	\$0.00	\$55.26
4	80	\$36.07	\$11.75	\$12.70	\$0.00	\$60.52

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12

**Notes:**

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 (BOSTON AREA)	09/16/2016	\$44.05	\$7.80	\$20.85	\$0.00	\$72.70
	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30

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## Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

## Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 09/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.43	\$7.80	\$20.85	\$0.00	\$55.08
2	70	\$30.84	\$7.80	\$20.85	\$0.00	\$59.49
3	75	\$33.04	\$7.80	\$20.85	\$0.00	\$61.69
4	80	\$35.24	\$7.80	\$20.85	\$0.00	\$63.89
5	85	\$37.44	\$7.80	\$20.85	\$0.00	\$66.09
6	90	\$39.65	\$7.80	\$20.85	\$0.00	\$68.30

Effective Date - 03/16/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.79	\$7.80	\$20.85	\$0.00	\$55.44
2	70	\$31.26	\$7.80	\$20.85	\$0.00	\$59.91
3	75	\$33.49	\$7.80	\$20.85	\$0.00	\$62.14
4	80	\$35.72	\$7.80	\$20.85	\$0.00	\$64.37
5	85	\$37.95	\$7.80	\$20.85	\$0.00	\$66.60
6	90	\$40.19	\$7.80	\$20.85	\$0.00	\$68.84

## Notes:

\*\* Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:\*\*

JACKHAMMER & PAVING BREAKER OPERATOR	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
LABORER	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
LABORERS - ZONE 1	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85

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Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

Apprentice - LABORER - Zone 1

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.81	\$7.60	\$14.15	\$0.00	\$43.56
2	70	\$25.45	\$7.60	\$14.15	\$0.00	\$47.20
3	80	\$29.08	\$7.60	\$14.15	\$0.00	\$50.83
4	90	\$32.72	\$7.60	\$14.15	\$0.00	\$54.47

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.41	\$7.60	\$14.15	\$0.00	\$44.16
2	70	\$26.15	\$7.60	\$14.15	\$0.00	\$47.90
3	80	\$29.88	\$7.60	\$14.15	\$0.00	\$51.63
4	90	\$33.62	\$7.60	\$14.15	\$0.00	\$55.37

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
LABORERS - ZONE 1	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
LABORERS - ZONE 1	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	12/01/2016	\$36.50	\$7.60	\$14.15	\$0.00	\$58.25
LABORERS - ZONE 1	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.28	\$7.60	\$14.15	\$0.00	\$64.03
For apprentice rates see "Apprentice- LABORER"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	02/01/2017	\$38.78	\$10.75	\$17.67	\$0.00	\$67.20

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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$10.75	\$17.67	\$0.00	\$47.81
2	60	\$23.27	\$10.75	\$17.67	\$0.00	\$51.69
3	70	\$27.15	\$10.75	\$17.67	\$0.00	\$55.57
4	80	\$31.02	\$10.75	\$17.67	\$0.00	\$59.44
5	90	\$34.90	\$10.75	\$17.67	\$0.00	\$63.32

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2017	\$50.80	\$10.75	\$19.22	\$0.00	\$80.77
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Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.40	\$10.75	\$19.22	\$0.00	\$55.37
2	60	\$30.48	\$10.75	\$19.22	\$0.00	\$60.45
3	70	\$35.56	\$10.75	\$19.22	\$0.00	\$65.53
4	80	\$40.64	\$10.75	\$19.22	\$0.00	\$70.61
5	90	\$45.72	\$10.75	\$19.22	\$0.00	\$75.69

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1) MILLWRIGHTS LOCAL 1121 - Zone 1	10/01/2016	\$37.97	\$9.90	\$18.25	\$0.00	\$66.12
	04/01/2017	\$38.87	\$9.90	\$18.25	\$0.00	\$67.02
	10/01/2017	\$39.77	\$9.90	\$18.25	\$0.00	\$67.92
	04/01/2018	\$40.67	\$9.90	\$18.25	\$0.00	\$68.82
	10/01/2018	\$41.57	\$9.90	\$18.25	\$0.00	\$69.72
	04/01/2019	\$42.47	\$9.90	\$18.25	\$0.00	\$70.62

Issue Date: 02/02/2017

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## Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

## Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.88	\$9.90	\$5.17	\$0.00	\$35.95
2	65	\$24.68	\$9.90	\$14.96	\$0.00	\$49.54
3	75	\$28.48	\$9.90	\$15.91	\$0.00	\$54.29
4	85	\$32.27	\$9.90	\$16.84	\$0.00	\$59.01

Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$21.38	\$9.90	\$5.17	\$0.00	\$36.45
2	65	\$25.27	\$9.90	\$14.96	\$0.00	\$50.13
3	75	\$29.15	\$9.90	\$15.91	\$0.00	\$54.96
4	85	\$33.04	\$9.90	\$16.84	\$0.00	\$59.78

## Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES, GRADALLS)	12/01/2016	\$22.96	\$10.00	\$15.25	\$0.00	\$48.21
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$23.47	\$10.00	\$15.25	\$0.00	\$48.72
	12/01/2017	\$23.99	\$10.00	\$15.25	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)	12/01/2016	\$26.94	\$10.00	\$15.25	\$0.00	\$52.19
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$27.54	\$10.00	\$15.25	\$0.00	\$52.79
	12/01/2017	\$28.15	\$10.00	\$15.25	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
PAINTERS LOCAL 35 - ZONE 2						

Issue Date: 02/02/2017

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## Classification

Effective Date   Base Wage   Health   Pension   Supplemental  
Unemployment   Total Rate

## Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

## Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) \*      01/01/2017      \$42.31      \$7.85      \$16.10      \$0.00      \$66.26

\* If 30% or more of surfaces to be painted are new construction,

NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

## Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.16	\$7.85	\$0.00	\$0.00	\$29.01
2	55	\$23.27	\$7.85	\$3.66	\$0.00	\$34.78
3	60	\$25.39	\$7.85	\$3.99	\$0.00	\$37.23
4	65	\$27.50	\$7.85	\$4.32	\$0.00	\$39.67
5	70	\$29.62	\$7.85	\$14.11	\$0.00	\$51.58
6	75	\$31.73	\$7.85	\$14.44	\$0.00	\$54.02
7	80	\$33.85	\$7.85	\$14.77	\$0.00	\$56.47
8	90	\$38.08	\$7.85	\$15.44	\$0.00	\$61.37

## Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)      01/01/2017      \$40.37      \$7.85      \$16.10      \$0.00      \$64.32

PAINTERS LOCAL 35 - ZONE 2

Issue Date: 02/02/2017

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## Classification

Effective Date   Base Wage   Health   Pension   Supplemental  
Unemployment   Total Rate

## Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04
2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71
3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06
4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41
5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22
6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57
7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92
8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62

## Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	12/01/2016	\$36.35	\$7.60	\$14.15	\$0.00	\$58.10
LABORERS - ZONE 1	06/01/2017	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	12/01/2017	\$38.20	\$7.60	\$14.15	\$0.00	\$59.95
	06/01/2018	\$39.15	\$7.60	\$14.15	\$0.00	\$60.90
	12/01/2018	\$40.10	\$7.60	\$14.15	\$0.00	\$61.85
	06/01/2019	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	12/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
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\* If 30% or more of surfaces to be painted are new construction,  
NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

## Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

## Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, REPAINT) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

**Notes:**

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00	\$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07

**Apprentice - PILE DRIVER - Local 56 Zone 1**

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87

**Notes:**

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i>	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

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Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

Apprentice - PIPEFITTER - Local 537

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.08	\$9.70	\$7.50	\$0.00	\$37.28
2	45	\$22.59	\$9.70	\$18.14	\$0.00	\$50.43
3	60	\$30.11	\$9.70	\$18.14	\$0.00	\$57.95
4	70	\$35.13	\$9.70	\$18.14	\$0.00	\$62.97
5	80	\$40.15	\$9.70	\$18.14	\$0.00	\$67.99

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

Notes:

\*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:\*\*

PIPELAYER	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS	09/01/2016	\$51.69	\$11.32	\$15.46	\$0.00	\$78.47
PLUMBERS & GASFITTERS LOCAL 12	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47

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## Classification

Effective Date   Base Wage   Health   Pension   Supplemental  
Unemployment   Total Rate

## Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.09	\$11.32	\$5.74	\$0.00	\$35.15
2	40	\$20.68	\$11.32	\$6.49	\$0.00	\$38.49
3	55	\$28.43	\$11.32	\$8.73	\$0.00	\$48.48
4	65	\$33.60	\$11.32	\$10.23	\$0.00	\$55.15
5	75	\$38.77	\$11.32	\$11.72	\$0.00	\$61.81

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.44	\$11.32	\$5.74	\$0.00	\$35.50
2	40	\$21.08	\$11.32	\$6.49	\$0.00	\$38.89
3	55	\$28.98	\$11.32	\$8.73	\$0.00	\$49.03
4	65	\$34.25	\$11.32	\$10.23	\$0.00	\$55.80
5	75	\$39.52	\$11.32	\$11.72	\$0.00	\$62.56

## Notes:

\*\* 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr  
Step4 with lic\$58.50 Step5 with lic\$65.36

Apprentice to Journeyworker Ratio:\*\*

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER LABORERS - ZONE 1	12/01/2016	\$37.35	\$7.60	\$14.15	\$0.00	\$59.10
	06/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	12/01/2017	\$39.20	\$7.60	\$14.15	\$0.00	\$60.95
	06/01/2018	\$40.15	\$7.60	\$14.15	\$0.00	\$61.90
	12/01/2018	\$41.10	\$7.60	\$14.15	\$0.00	\$62.85
	06/01/2019	\$42.10	\$7.60	\$14.15	\$0.00	\$63.85
	12/01/2019	\$43.10	\$7.60	\$14.15	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE)	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER)	12/01/2016	\$31.17	\$10.00	\$15.25	\$0.00	\$56.42
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
(Drivers Hired After 4/30/2010) TEAMSTERS LOCAL 25b	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER	07/01/2016	\$29.33	\$8.23	\$9.31	\$0.00	\$46.87
TEAMSTERS LOCAL 25b	05/01/2017	\$29.48	\$8.23	\$9.72	\$0.00	\$47.43
	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
RECLAIMERS	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work)	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
CARPENTERS -ZONE 2 (Residential Wood)						
RESIDENTIAL WOOD FRAME CARPENTER **	10/01/2016	\$25.69	\$7.07	\$7.18	\$0.00	\$39.94
** The Residential Wood Frame Carpenter classification applies	04/01/2017	\$26.31	\$7.07	\$7.18	\$0.00	\$40.56
only to the construction of new, wood frame residences that do	10/01/2017	\$26.93	\$7.07	\$7.18	\$0.00	\$41.18
not exceed four stories including the basement. CARPENTERS -ZONE	04/01/2018	\$27.35	\$7.07	\$7.18	\$0.00	\$41.60
2 (Residential Wood)	10/01/2018	\$27.77	\$7.07	\$7.18	\$0.00	\$42.02
	04/01/2019	\$28.20	\$7.07	\$7.18	\$0.00	\$42.45
	10/01/2019	\$28.63	\$7.07	\$7.18	\$0.00	\$42.88

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

**Apprentice - CARPENTER (Residential Wood Frame) - Zone 2**

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.41	\$7.07	\$0.00	\$0.00	\$22.48
2	60	\$15.41	\$7.07	\$0.00	\$0.00	\$22.48
3	65	\$16.70	\$7.07	\$7.18	\$0.00	\$30.95
4	70	\$17.98	\$7.07	\$7.18	\$0.00	\$32.23
5	75	\$19.27	\$7.07	\$7.18	\$0.00	\$33.52
6	80	\$20.55	\$7.07	\$7.18	\$0.00	\$34.80
7	85	\$21.84	\$7.07	\$7.18	\$0.00	\$36.09
8	90	\$23.12	\$7.07	\$7.18	\$0.00	\$37.37

Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.79	\$7.07	\$0.00	\$0.00	\$22.86
2	60	\$15.79	\$7.07	\$0.00	\$0.00	\$22.86
3	65	\$17.10	\$7.07	\$7.18	\$0.00	\$31.35
4	70	\$18.42	\$7.07	\$7.18	\$0.00	\$32.67
5	75	\$19.73	\$7.07	\$7.18	\$0.00	\$33.98
6	80	\$21.05	\$7.07	\$7.18	\$0.00	\$35.30
7	85	\$22.36	\$7.07	\$7.18	\$0.00	\$36.61
8	90	\$23.68	\$7.07	\$7.18	\$0.00	\$37.93

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS - ZONE 1	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg) ROOFERS LOCAL 33	02/01/2017	\$41.36	\$11.10	\$13.80	\$0.00	\$66.26
	08/01/2017	\$42.46	\$11.10	\$13.80	\$0.00	\$67.36
	02/01/2018	\$43.61	\$11.10	\$13.80	\$0.00	\$68.51
	08/01/2018	\$44.71	\$11.10	\$13.80	\$0.00	\$69.61
	02/01/2019	\$45.86	\$11.10	\$13.80	\$0.00	\$70.76

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## Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

## Apprentice - ROOFER - Local 33

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.68	\$11.10	\$3.44	\$0.00	\$35.22
2	60	\$24.82	\$11.10	\$13.80	\$0.00	\$49.72
3	65	\$26.88	\$11.10	\$13.80	\$0.00	\$51.78
4	75	\$31.02	\$11.10	\$13.80	\$0.00	\$55.92
5	85	\$35.16	\$11.10	\$13.80	\$0.00	\$60.06

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.23	\$11.10	\$3.44	\$0.00	\$35.77
2	60	\$25.48	\$11.10	\$13.80	\$0.00	\$50.38
3	65	\$27.60	\$11.10	\$13.80	\$0.00	\$52.50
4	75	\$31.85	\$11.10	\$13.80	\$0.00	\$56.75
5	85	\$36.09	\$11.10	\$13.80	\$0.00	\$60.99

Notes: \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1  
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.  
(Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:\*\*

ROOFER SLATE / TILE / PRECAST CONCRETE  
ROOFERS LOCAL 33

02/01/2017	\$41.61	\$11.10	\$13.80	\$0.00	\$66.51
08/01/2017	\$42.71	\$11.10	\$13.80	\$0.00	\$67.61
02/01/2018	\$43.86	\$11.10	\$13.80	\$0.00	\$68.76
08/01/2018	\$44.96	\$11.10	\$13.80	\$0.00	\$69.86
02/01/2019	\$46.11	\$11.10	\$13.80	\$0.00	\$71.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER  
SHEETMETAL WORKERS LOCAL 17 - A

02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84

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Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
2	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
3	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
4	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
5	50	\$21.86	\$11.45	\$11.21	\$1.34	\$45.86
6	50	\$21.86	\$11.45	\$11.46	\$1.34	\$46.11
7	60	\$26.23	\$11.45	\$13.02	\$1.52	\$52.22
8	65	\$28.42	\$11.45	\$13.93	\$1.61	\$55.41
9	75	\$32.79	\$11.45	\$15.74	\$1.80	\$61.78
10	85	\$37.16	\$11.45	\$17.05	\$1.97	\$67.63

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
2	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
3	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
4	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
5	50	\$22.41	\$11.45	\$11.21	\$1.35	\$46.42
6	50	\$22.41	\$11.45	\$11.46	\$1.36	\$46.68
7	60	\$26.89	\$11.45	\$13.02	\$1.54	\$52.90
8	65	\$29.13	\$11.45	\$13.93	\$1.64	\$56.15
9	75	\$33.62	\$11.45	\$15.74	\$1.82	\$62.63
10	85	\$38.10	\$11.45	\$17.05	\$2.00	\$68.60

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR PAINTERS LOCAL 35 - ZONE 2	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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## Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

## Apprentice - SIGN ERECTOR - Local 35 Zone 2

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

## Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio: 1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	01/01/2017	\$55.08	\$8.77	\$17.20	\$0.00	\$81.05
	03/01/2017	\$56.08	\$8.77	\$17.20	\$0.00	\$82.05

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## Classification

Effective Date   Base Wage   Health   Pension   Supplemental  
Unemployment   Total Rate

## Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.28	\$8.52	\$8.70	\$0.00	\$36.50
2	40	\$22.03	\$8.52	\$8.70	\$0.00	\$39.25
3	45	\$24.79	\$8.52	\$8.70	\$0.00	\$42.01
4	50	\$27.54	\$8.52	\$8.70	\$0.00	\$44.76
5	55	\$30.29	\$8.52	\$8.70	\$0.00	\$47.51
6	60	\$33.05	\$8.52	\$10.20	\$0.00	\$51.77
7	65	\$35.80	\$8.52	\$10.20	\$0.00	\$54.52
8	70	\$38.56	\$8.52	\$10.20	\$0.00	\$57.28
9	75	\$41.31	\$8.52	\$10.20	\$0.00	\$60.03
10	80	\$44.06	\$8.52	\$10.20	\$0.00	\$62.78

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.63	\$8.52	\$8.70	\$0.00	\$36.85
2	40	\$22.43	\$8.52	\$8.70	\$0.00	\$39.65
3	45	\$25.24	\$8.52	\$8.70	\$0.00	\$42.46
4	50	\$28.04	\$8.52	\$8.70	\$0.00	\$45.26
5	55	\$30.84	\$8.52	\$8.70	\$0.00	\$48.06
6	60	\$33.65	\$8.52	\$10.20	\$0.00	\$52.37
7	65	\$36.45	\$8.52	\$10.20	\$0.00	\$55.17
8	70	\$39.26	\$8.52	\$10.20	\$0.00	\$57.98
9	75	\$42.06	\$8.52	\$10.20	\$0.00	\$60.78
10	80	\$44.86	\$8.52	\$10.20	\$0.00	\$63.58

Notes: Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	09/01/2016	\$35.35	\$13.00	\$15.57	\$0.00	\$63.92
	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35

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Classification

Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.14	\$13.00	\$0.42	\$0.00	\$27.56
2	40	\$14.14	\$13.00	\$0.42	\$0.00	\$27.56
3	45	\$15.91	\$13.00	\$11.53	\$0.00	\$40.44
4	45	\$15.91	\$13.00	\$11.53	\$0.00	\$40.44
5	50	\$17.68	\$13.00	\$11.80	\$0.00	\$42.48
6	55	\$19.44	\$13.00	\$12.07	\$0.00	\$44.51
7	60	\$21.21	\$13.00	\$12.36	\$0.00	\$46.57
8	65	\$22.98	\$13.00	\$12.63	\$0.00	\$48.61
9	70	\$24.75	\$13.00	\$13.91	\$0.00	\$51.66
10	75	\$26.51	\$13.00	\$14.19	\$0.00	\$53.70

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
2	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
3	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
4	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
5	50	\$18.13	\$13.00	\$12.81	\$0.00	\$43.94
6	55	\$19.94	\$13.00	\$13.09	\$0.00	\$46.03
7	60	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
8	65	\$23.56	\$13.00	\$13.65	\$0.00	\$50.21
9	70	\$25.38	\$13.00	\$13.93	\$0.00	\$52.31
10	75	\$27.19	\$13.00	\$14.21	\$0.00	\$54.40

Notes:

Apprentice to Journeyworker Ratio: 1:1

TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2017	\$49.70	\$10.75	\$19.22	\$0.00	\$79.67
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.85	\$10.75	\$19.22	\$0.00	\$54.82
2	60	\$29.82	\$10.75	\$19.22	\$0.00	\$59.79
3	70	\$34.79	\$10.75	\$19.22	\$0.00	\$64.76
4	80	\$39.76	\$10.75	\$19.22	\$0.00	\$69.73
5	90	\$44.73	\$10.75	\$19.22	\$0.00	\$74.70

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER LABORERS - FOUNDATION AND MARINE	12/01/2016	\$37.70	\$7.60	\$14.35	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER LABORERS - FOUNDATION AND MARINE	12/01/2016	\$36.42	\$7.60	\$14.35	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER LABORERS - FOUNDATION AND MARINE	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS OPERATING ENGINEERS LOCAL 4	12/01/2016	\$44.94	\$10.00	\$15.25	\$0.00	\$70.19
	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR LABORERS (COMPRESSED AIR)	12/01/2016	\$48.58	\$7.60	\$14.75	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) LABORERS (COMPRESSED AIR)	12/01/2016	\$50.58	\$7.60	\$14.75	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR LABORERS (FREE AIR TUNNEL)	12/01/2016	\$40.65	\$7.60	\$14.75	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS (FREE AIR TUNNEL)	12/01/2016	\$42.65	\$7.60	\$14.75	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR	12/01/2016	\$36.60	\$7.60	\$14.15	\$0.00	\$58.35
LABORERS - ZONE 1	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR	12/01/2016	\$45.38	\$10.00	\$15.25	\$0.00	\$70.63
OPERATING ENGINEERS LOCAL 4	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER	09/01/2016	\$51.69	\$11.32	\$15.46	\$0.00	\$78.47
PLUMBERS & GASFITTERS LOCAL 12	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
<b>Outside Electrical - East</b>						
CABLE TECHNICIAN (Power Zone)	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables)	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL)	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL)	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.)	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Issue Date: 02/02/2017

Wage Request Number: 20170202-050

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## Classification

Effective Date   Base Wage   Health   Pension   Supplemental  
Unemployment   Total Rate

## Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 08/28/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.50	\$3.30	\$0.00	\$37.41
2	65	\$28.83	\$7.50	\$3.36	\$0.00	\$39.69
3	70	\$31.05	\$7.50	\$3.43	\$0.00	\$41.98
4	75	\$33.26	\$7.50	\$5.00	\$0.00	\$45.76
5	80	\$35.48	\$7.50	\$5.06	\$0.00	\$48.04
6	85	\$37.70	\$7.50	\$5.13	\$0.00	\$50.33
7	90	\$39.92	\$7.50	\$7.20	\$0.00	\$54.62

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Issue Date: 02/02/2017

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Additional Apprentice Information:**

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.

\*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

\*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

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# **The Massachusetts Prevailing Wage Law**

## **M.G.L. ch. 149, §§ 26 – 27**

### **NOTICE TO AWARDING AUTHORITIES**

- 'The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- 'You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- 'The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- 'Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

### **NOTICE TO CONTRACTORS**

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108

## WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Workforce Development/Division of Occupational Safety within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

### STATEMENT OF COMPLIANCE

\_\_\_\_\_, 2017

I, \_\_\_\_\_

(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

\_\_\_\_\_ on the \_\_\_\_\_  
(Contractor, subcontractor or public body) (Building or project) and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature \_\_\_\_\_

Title \_\_\_\_\_

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108



## CITY OF NEWTON

### SUMMARY OF WORK AND SPECIFIC REQUIREMENTS OF THE CONTRACT

#### FOR PUBLIC WORKS CONSTRUCTION

A. SUMMARY OF WORK

The work under this Contract consists of furnishing all necessary labor, materials and equipment required for roadway and traffic signal improvements at Washington Street and Harvard Street intersection in the City of Newton, Massachusetts. The work includes mill and overlay of the existing roadway pavement with hot mix asphalt, installation of new granite curb, new cement concrete sidewalk and curb ramp, installation of new traffic signals, signs and pavement markings, and other miscellaneous items of work as shown on the plans and described herein.

All other work described in the Project Manual and/or shown on the Plan(s) unless specifically indicated as not to be done.

B. In addition the work under the contract includes:

1. Work outside the Project Site as called for in the Project Manual and/or Plan(s) and as required for the performance of the work.
2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
3. All labor, materials, tools, and equipment necessary to do all the work required for the completion of each item as specified, which shall limited not only to the exact intent mentioned, but shall include incidental work necessary or customarily performed for the completion of that item.
4. All items not specifically mentioned or noted in the Project Manual and/or Plan(s), but which are obviously necessary to make a complete working installation.

C. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to the work described.

II. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

A. Upon notification the Contractor shall commence the work specified in the Project Manual as directed by the City. The work shall proceed in a continuous uninterrupted fashion with adequately staffed crews, in a satisfactory manner, which will assure that the work is completed in a timely manner to the satisfaction of the City.

B. The time for substantial completion pursuant to Article 2 of the Contract:

## **NOTICE: \* TIME IS OF THE ESSENCE \***

**Within five (5) business days of the Notice Of Award the Contractor shall submit to the Purchasing Department:**

- **A signed contract.**
- **A Certificate of Insurance (naming the City as an additional insured)**
- **A Labor and Materials Payment Bond in the amount of 50% of the contract total.**

**Anticipated start date is April 1, 2017. Time for substantial completion is June 30, 2017. The successful bidder must be able to accommodate the City of Newton in the scheduling and/or coordination of this work.**

Time is of the essence for the completion of this contract. If the Contractor fails to achieve substantial or final completion of the Work within the time required by the contract, and unless an extension of time is granted, the Contractor shall pay to the City as liquidated damages, the applicable amount specified in **Article 6A** of the **General Conditions** for each day of delay. If different completion dates are specified in the Contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another section in this Contract, liquidated damages shall not be due the City. The Contractor remains liable for damages caused other than by delay.

### **III. INSURANCE REQUIREMENTS**

- A. The Contractor shall carry and maintain until acceptance of the work such Workmen's Compensation, Automobile Liability, Public Liability, Contingent Public Liability, Property Damage and Contingent Property Damage Insurance, each including blasting coverage, as shall protect him and any sub-contractor performing work covered by this contract from all claims and liability for damages for personal injury, including accidental death, and for property damage which may arise from operations under this contract, whether such operations be by himself or by any sub-contractor or by any one directly or indirectly employed by either of them.
- B. The City shall be named as an additional insured on such policy.
- C. The amounts of such insurance shall be as follows:
  - 1. Workmen's Compensation Insurance as required by Massachusetts General Law.
  - 2. Automobile Liability Insurance on all vehicles owned or hired for a.) Bodily Injury in an amount not less than \$500,000.00 for each occurrence, and not less than \$1,000,000.00 aggregate; b.) Property Damage in an amount not less than \$300,000.00 each occurrence, and not less than \$500,000.00 aggregate.
  - 3. Public Liability Insurance and Contingent Public Liability Insurance in an amount not less than \$500,000.00 for injuries, including accidental death to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000.00 on account of one accident.
  - 4. Property Damage Insurance and Contingent Property Damage Insurance in an amount not less than \$300,000.00 on account of one accident, and in an amount of not less than \$500,000.00 on account of all accidents.
  - 5. General Liability Insurance shall include Contractual Liability Insurance.

- D. Before any work is started, the successful bidder shall be required to file with the Chief Procurement Officer certificates of insurance coverage as detailed above, with policy numbers and dates of expiration.
  
- E. The Contractor shall indemnify, hold harmless and defend the City and its departments, officers, employees, servants, and agents from and against all actions, causes of actions, claims, demands, damages, costs, loss of services, expenses and compensation, including attorney's fees and interest arising out of or resulting directly or indirectly from the services rendered pursuant to this Contract, provided that any such action, cause of action, claim, demand, damage, cost, loss of service, expense, compensation (1) in any way grows out of bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, which (2) is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

**END OF SECTION**

**CITY OF NEWTON**  
**GENERAL CONDITIONS OF THE CONTRACT**  
**FOR PUBLIC WORKS CONSTRUCTION**

**ARTICLE 1**

**Definitions**

The word "Commissioner" shall mean the official duly authorized to act for the City of Newton in the execution of the work of this contract, acting directly or through properly authorized agents.

The word "Engineer," or "City Engineer," shall mean the City Engineer of the City of Newton, acting directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

The word "Contractor" shall mean the party or parties contracting to perform the work covered by this contract or his, or their, legal representatives, successors or assigns.

The word "Plans" shall mean plans, and all related drawings, diagrams, profiles and specifications referred to and included in the Project Manual for this contract.

The word "City" shall mean the City of Newton.

The word "Project" shall mean the services which are the subject of the Contract Documents.

The words "Subcontract" and "Subcontractor" shall refer to project contracts between the Contractor and a subcontractor, and the subcontractor thereunder.

The term "Substantial Completion" shall mean either that the work required by the contract has been completed except for the work having a contract price of less than one per cent of the then adjusted contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract.

**ARTICLE 2**  
**Plans, Drawings, Profiles**

**Discrepancy in Plans**

1. The Contractor shall carefully examine all said Plans, profiles, drawings, specifications and orders; all figures, dimensions, lines, marks and scales thereof, and all directions of the Commissioner and the Engineer relating to the work, and conform to those in relation to which there is no doubt or discrepancy, but at once submit all cases of doubt or discrepancy to the Engineer for adjustment. Anything done on any part of the work for which special information or drawing should be procured, unless done in accordance with such information or drawing, or anything done in relation to which there is doubt or discrepancy, except in accordance with the adjustment thereof, or done in violation of law or public authority, is to be redone if the Commissioner shall so direct.



### **ARTICLE 3**

#### **Inspection**

The Contractor in carrying on the contract shall conform to all determinations and directions of the Engineer relating to the proper interpretation of the Plans, , the fitness of persons employed on the work or the number thereof, or the suitability, amount, quality, and value of anything done or any materials used, and the Contractor shall permit the Commissioner and/or the Engineer and/or persons designated by them to enter upon the work and inspect the same at all times and in all places, and shall provide safe and convenient facilities for making such entry and inspection.

### **ARTICLE 4**

#### **Change in Plans and Work**

The City, acting through the Commissioner and upon his written order only, from time to time given to the Contractor or his foreman, may change, increase or take away any part of the work, or change the specifications, Plans, drawings, form or materials thereof. Any deduction or addition thereto is to be allowed, or paid for at a price to be determined, within not more than 15 days of the completion of the change, by the City Engineer acting in the same capacity as an architect in a building contract as between City and Contractor. Any demand for addition or deduction must be made in writing to the City Engineer within seven (7) days of the time change was ordered.

### **ARTICLE 5**

#### **Time and Manner of Doing the Work**

1. The Contractor shall begin work upon receipt of written Notice to Proceed. Once begun the work shall be carried out in a continuous and uninterrupted fashion with sufficient workforce and resources to assure completion by the date for completion established by the Contract Documents.

2. The Contractor shall carry on the work in accordance with the requirements of law and of all other public authorities, and to the satisfaction of the Commissioner; he shall give all notices, take out all permits, pay all charges and fees, give personal supervision to the work and keep thereon a competent foreman and sufficient employees, skilled in the several parts which are given them to do.

#### **Maintenance of Travel**

3. As applicable, the Contractor shall conduct his work so as to interfere as little as possible with public travel, and shall give property owners proper means of access to their property where existing access has been cut off by the work. Pedestrian access to businesses shall be maintained at all times during the hours of operation of each business. The Contractor shall keep the streets open for bi-directional through travel except where, in the opinion of the Commissioner, it is necessary to close the street. The continuous length of the street occupied for the work shall be kept as short as possible, and no part of the work shall be unnecessarily delayed. Wherever the Commissioner shall direct, trenches shall be bridged by the Contractor in a proper and secure manner so as not to interrupt travel. Free access shall be maintained at all times to all water gates, gas gates, and fire hydrants.

#### **Abandonment of Work by Contractor**

4. In the event the City Engineer certifies to the Commissioner that the work is not being so carried forward or if the Contractor at any time is not carrying on the work to the satisfaction of the Commissioner, or is not observing any of the provisions of the contract, or has abandoned the work, or become insolvent or assigned his property, the City, acting by the Commissioner and at his discretion, may, with or without notice to the Contractor, or advertising for doing the work, and by contract, day labor or otherwise, do any part of the work which the Contractor has failed to do or replace any part not done to the satisfaction of the Commissioner, or take possession of the work and complete the same, and in doing so may use any implements, machinery or materials on or about the work which are the property of the Contractor, charging the Contractor any excess cost for completing the work, which excess cost the Contractor agrees to pay.

## **ARTICLE 6**

### **Compensation for Work**

1. Subject to the provisions of Paragraph 10 of this Article, the price named in the proposal and accepted by the City shall be paid by the City and received by the Contractor as full compensation for furnishing materials and for use of tools, forms, machinery and other implements, and for labor in moving materials and executing all the work contemplated in this contract, also for loss or damage arising from delay however occasioned, or out of the nature of the work aforesaid or from the action of the elements, from floods, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work and for well and faithfully completing the work in the proper manner and according to the plans and specifications and requirements of the Commissioner under them.

2. During the first week of each calendar month, the City Engineer shall cause all work done by the Contractor during the previous month to be measured and shall estimate the value thereof and, on or before the 10th of each month issue a certificate to the Commissioner of the measurements and the amount due the Contractor according to the terms of his contract.

3. The City shall pay the Contractor on approval of the Commissioner monthly on or before the 18th of each month for all work done during the preceding month according to the aforementioned certificate of the City Engineer, less 5 per cent of the amount of such work and less any amounts due the City by the Contractor.

### **Final and Substantial Completion**

4. Upon substantial completion of the work required by the Contract, the Contractor must present to the City Engineer written certification that the work is substantially complete. Within 21 calendar days after such certification is presented, the City Engineer shall present to the Contractor either a written declaration that the work is substantially complete or an itemized list of incomplete or unsatisfactory work items sufficient to demonstrate that the work is not substantially complete. The City Engineer shall include with such itemized list a date by which the work items must be completed, which date may not be earlier than the date for substantial completion established in the Contract Documents. If the City Engineer does not respond as provided herein within 21 calendar days, then the date of the Contractor's certification shall become the date for effective declaration of substantial completion.

5. Within 15 calendar days after the effective declaration of substantial completion, the City Engineer shall send to the Contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items. Unless delayed by causes beyond the Contractor's control, with an extension of time granted pursuant to Article 8, the Contractor must complete the work items within 45 calendar days after receipt of the list, or by the contractual completion date, whichever is later. If the contractor fails to complete the work within the required time the City may, notwithstanding other rights and remedies at its disposal, and upon seven days written notice to the Contractor terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the Contractor.

6. Within 65 calendar days following the effective declaration of substantial completion, the City Engineer shall issue to the Commissioner who shall cause to be paid to the Contractor a substantial completion estimate which estimate shall consist of the balance of the then current contract price less a one percent retention, the estimated cost to complete incomplete or unsatisfactory work items, the value of any outstanding claims against the Contractor and the sum of all demands for direct payment made pursuant to Article 12 herein, provided that until final acceptance, the City shall retain five percent of the value of all items planted in the ground.

7. The Contractor shall provide written notice to the City Engineer when the work has been brought to final completion. Within ten days following receipt of such notice, and providing his inspection shows no work items remain incomplete or unsatisfactory, the City Engineer shall issue to the Commissioner a final certificate of the total amount of work done and the money due the Contractor therefor, crediting thereon the amounts of the previous payments. In making the final certificate, the City Engineer shall not be bound by any preceding certificate or estimate of the amount of work done or materials furnished.

8. Within 30 calendar days following receipt of final completion, the City shall pay the Contractor, on the approval of the Commissioner, the percentages retained and the balance due the Contractor according to the aforementioned final certificate of the City Engineer less any indebtedness of the Contractor for incomplete or unsatisfactory work or claims made by or against the City. If a claim or claims are made, or notice of liability given, such amounts due the Contractor may be paid upon satisfaction of such claims or upon furnishing of indemnity to said City against all loss, cost, damage or expense by reason of such claims.

9. The City, on making any payment after the completion of the work, shall be released from all claim or liability to the Contractor for anything done or used, or for any loss or injury sustained in carrying on the contract, or for any act, omission, neglect or mistake of the City or any person relating to or affecting the contract, except for the balance of any sum retained as aforesaid.

### **Extra Work**

10. The Contractor shall be paid for any additions, or deductions as provided in Article 4, paragraph 1, and for extra labor done by, and for extra materials furnished by him in compliance with the written order only of the Commissioner, calling for work not similar in character to that covered by the items given in the proposal, and for which no price is set in the said written order, the direct (not including consequential) cost to the Contractor, as determined to be reasonable by the Commissioner, plus fifteen per cent of said costs as so determined in regard to labor only. For teams or trucks so furnished, no payment shall be made to the Contractor beyond the current local rate as determined by the Commissioner in each case. The direct cost of labor may include the cost of mechanics and laborers furnished and a reasonable proportion of the time of the foreman and timekeeper, but it shall in no case include any charge for the use of tools, for establishment charges or for time spent by the Contractor. The actual cost of insurance on extra pay rolls and of materials furnished for extra work, shall be paid without any addition. The labor and materials so ordered shall constitute a part of the work to be done under the contract; and all and singular the provisions of the contract shall apply to said labor and materials as if the same were specified therein. The Contractor shall have no claim for the above mentioned extra labor and materials unless he furnishes the details and bills therefor within one week after doing any such labor or furnishing any such materials.

11. No claim of the Contractor against the City under this contract shall be deemed valid unless such claim is presented to the Commissioner within ten days from the time when the Contractor first knows of, or has opportunity to know of, the acts and circumstances on which such claim is based.

12. A payment or payments to the Contractor, in cases where these provisions or any of them, are not complied with, shall not be construed as a waiver of said provisions or any part thereof.

### **Contract Made Subject to Appropriations**

13. This contract is made subject to appropriation heretofore made and shall not be altered unless the Contractor, the sureties on the bond, if any, the officer making the contract and the Mayor shall in writing agree thereto.

## **ARTICLE 7**

### **Liquidated Damages**

1. In case the work embraced in the contract shall not have been substantially completed by the date(s) stipulated therein, the Contractor shall pay to the City of Newton as liquidated damages a designated sum per calendar day for the entire period of overrun until the work is substantially completed in accordance with the following Schedule of Deductions and, in addition, the Contractor shall pay without reimbursement the entire cost of all traffic officers, railroad flagmen, inspectors, or other personnel the City Engineer and/or the Chief Engineer of the railroad determines to be necessary during the period of overrun of time.

### **SCHEDULE OF DEDUCTIONS**

<u>Original Contract Amount</u> <u>From More Than</u>	<u>To and Including</u>	<u>Daily Charge</u> <u>Per Calendar Day</u>
\$ 0.	\$ 25,000.	\$ 30.
25,000.	50,000.	50.
50,000.	100,000.	100.
500,000.	1,000,000.	150.
1,000,000.	2,000,000.	200.
2,000,000.	—	300.

2. In case the work covered by the contract shall not have been brought to final completion within 45 calendar days following the date of declaration of substantial completion, the Contractor shall pay to the City of Newton as liquidated damages the sum of \$150.00 for each week or portion thereof during the period of overrun until the work is complete.

3. Whatever sum of money may become due and payable to the City of Newton by the Contractor under this Article may be retained out of money belonging or owed to the Contractor in the hands and possession of or by the City of Newton. It is agreed that this Article shall be construed and treated by the parties to the contract not as imposing a penalty upon said Contractor for failing fully to complete said work as agreed on or before the time specified in the proposal, but as liquidated damages to compensate said City of Newton for all additional costs incurred by it because of the failure of the Contractor fully to complete said work on or before the date of completion specified in the proposal.

## **ARTICLE 8**

### **Delays and Extensions of Time**

1. If the Contractor is delayed at any time in the progress of the work by an act or neglect of the City, or by changes in the work ordered by the City, or by unseasonably inclement weather, or by other causes deemed by the City Engineer to be beyond the Contractor's control, and which the City Engineer determines may justify delay, then the time for completion may be extended for such reasonable time as the City Engineer may determine.

2. No such extension of time will be allowed unless the Contractor submits a written request for an extension to the City Engineer no later than 10 calendar days of the start of the occurrence or event giving rise thereto. Each such request must describe the occurrence or event and specify the manner and extent that such occurrence or event is causing or has caused a delay in the work. The City Engineer shall promptly investigate each request and make his written determination to the Commissioner and the Contractor within 10 days after receipt of the request. In his determination the City Engineer may either grant, deny, or modify the length of the requested extension.

3. If the City Engineer's determination so warrants, the Commissioner shall authorize a written Change Order to the Contract extending the time for completion. No extension of time shall be deemed as granted until said Change Order has been duly executed by the parties.

4. Change Orders which may be executed by the City and the Contractor in connection with additions, extra labor and/or extra materials shall not be considered as allowing extensions of the time for completion unless the change order expressly specifies that additional time is allowed in connection with the work under the change order. Once a Change Order has been executed by the parties, any request by the Contractor for an extension of time based solely on the fact that additions, extra labor and/or extra materials are required by the Change Order will be denied by the City Engineer.

5. Permitting the Contractor to continue and finish the work or any part of it after the times fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the City of Newton of any of its rights under the contract. The Contractor remains liable for damages caused other than by delay.

## **ARTICLE 9**

### **Lines and Grades**

The Contractor shall retain a Registered Land Surveyor who shall furnish such boards and stakes and cause to be placed thereon, such lines, marks and directions relating to the work as the Commissioner or City Engineer shall from time to time direct.

## **ARTICLE 10**

### **Public Service Pipes and Conduits**

1. The Contractor shall maintain such pipes or conduits of public service corporations or of the City as are across or within the lines of the work until such time as said public service corporations or the City assume the maintenance or removal of said pipes or conduits. The Commissioner will notify such public service corporations to that effect on the existence of such obstructions to the work being brought to his notice by the Contractor. The City will relocate either temporarily or permanently all water mains and water service pipes, or hydrants, and drains or sewers which may interfere with the work contemplated in this contract. (This clause is not to be construed as applying to such pipes as may be readily supported and protected during the progress of the work.) The cost of shutting off and turning on water in water mains during blasting shall be assumed by the City.

### **Protection of Existing Structures**

2. All existing gas pipes, water pipes, sewers, drains, conduits, or other structures which are uncovered by the excavation shall be carefully supported and protected from injury by the Contractor, and, in case of injury, they shall be restored by him, without compensation therefor, to as good condition as that in which they were found, and shall be kept in repair until 6 months after the completion of the work. The Contractor shall provide suitable temporary channels for water at all water courses.

Wherever the work passes under or adjacent to street railway tracks, the Contractor shall make all necessary arrangements with the railway company for doing any work which may affect the property of the company or interfere with the operating of the railway, and he shall be liable for any damage that may be caused by any act, omission or neglect on his part, and shall pay all expenses of every kind incidental to this work.

### **Changing the Location of Existing Structures**

3. Whenever it becomes necessary to change the location of any water or gas pipes, sewers, drains, conduits or other structures not otherwise provided for in these specifications, the Contractor shall do the whole or such portions of the work of making such changes as the Commissioner may require, and shall receive in payment therefor the reasonable cost of the work done as determined by the Commissioner plus 15 per cent of such cost. In estimating such cost, no allowance shall be made to the Contractor for the use of tools not especially provided for this work, for general superintendence, or for any overhead expenses except liability insurance.

## **ARTICLE 11**

### **Co-operation with Other Contractors**

The Contractor shall conduct the work in such manner as not to interfere with other work being done by the City, by contract or otherwise, and if deemed necessary by the Commissioner, the work under this contract shall conform to the progress of said other work; shall co-operate with other contractors or employees who may be doing work for the City, and with public service corporations affected by the work, in arranging for storage places, connections, bracings, temporary support for structures, repairs, etc.

## **ARTICLE 12**

### **Subcontracts**

1. The Contractor, in any contract with a Subcontractor, shall provide that the Subcontractor shall be subject to all specifications, terms, provisions, conditions, requirements and liabilities set forth in this contract so far as such specifications, terms, provisions, conditions, requirements and liabilities are applicable to the work to be done under such Subcontract, and shall also provide that such Subcontract shall be terminated by the Contractor whenever the Commissioner shall certify to him in writing that in his opinion the work of the Subcontractor is unnecessarily or unreasonably delayed or that the Subcontractor has violated any of the provisions of this contract. The Contractor shall at once terminate such subcontract if the Commissioner, after certifying as aforesaid, shall in writing direct the Contractor to make such termination.

2. Subcontracts shall be made in writing and the Contractor shall furnish the Commissioner with a copy of all Subcontracts on demand.

3. Pursuant to the provisions of M.G.L. Ch. 30, Sec. 39F (1), the following provisions are included in the General Conditions:

(a) Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

(b) Not later than the sixty-fifth day after each Subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the Subcontract less amounts retained by the City as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the City shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the City less any amount specified in any court proceedings barring the payment and also less any amount claimed due from the Subcontractor by the Contractor.

(c) Each payment made by the City to the Contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of the Subcontractor; and the City shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the City has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in subparagraphs (a) and (b), the City shall act upon the demand as provided in this section.



(d) If, within seventy days after the Subcontractor has substantially completed the Subcontract work, the Subcontractor has not received from the Contractor the balance due under the Subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the City, the demand shall be by a sworn statement delivered to or sent by certified mail to the City, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the Subcontract and also a statement of the status of the completion of the Subcontract work shall be valid even if delivered or mailed prior to the seventieth day after which the Subcontractor has substantially completed the Subcontract work. Within ten days after the Subcontractor has delivered or so mailed the demand to the City and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the City and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the Subcontract including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.

(e) Within fifteen days after receipt of the demand by the City, but in no event prior to the seventieth day after substantial completion of the Subcontract work, the City shall make direct payment to the Subcontractor of the balance due under the Subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the City as the estimated cost of completing the incomplete or unsatisfactory items of work (ii) specified in any court proceedings barring such payment, or, (iii) if the reply shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The City shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The City shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the City or agreed upon by the Contractor and the Subcontractor and shall notify the Contractor and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the City to the Contractor to the extent of such payment.

(h) The City shall deduct from payments to a Contractor amounts which, together with deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

### **ARTICLE 13**

#### **Responsibility for Work-Contractor's Responsibility**

The Contractor has made his proposal from his own examinations and estimates, and shall not hold the City, its agents, or employees, responsible for or bound by, any schedule, estimate, sounding, boring, or any plan of any part of the work; shall, if any error in any plan, drawing, specification or direction relating to anything to be done under the contract come to his knowledge, report it at once to the Commissioner; shall not, except as the Commissioner shall authorize in writing, assign or sublet any part of the contract except for the supply of materials and plant, or of anything to be done thereunder; shall, subject to the provisions of the contract take all responsibility of, and bear all losses resulting to him in carrying on the contract, and shall assume the defense of, and hold the City, its agents and employees harmless from all suits and claims against them, or any of them, arising from the use of any invention, patent or patent right, material, labor or implement, by or from any act or omission or neglect of the Contractor, his Subcontractor, his agents or employees, in carrying on the contract, or for any liability of any nature arising under the contract. The Contractor shall be solely responsible and liable for, and shall fully protect and indemnify the City against all claims for damages to persons or property occasioned by or resulting from blasting or other methods or processes in the work of construction, whether such damages be attributable to negligence of the Contractor, his employees or his Subcontractor or otherwise.

## **ARTICLE 14**

### **Lights - Guards**

1. The Contractor shall assume all responsibilities of the work and take all proper precautions to protect persons and property from injury and unnecessary interference; leave a reasonably unobstructed way along public and private places for pedestrians, teams, and vehicles, and for access to hydrants; provide proper walks over or around any obstruction made in a public or private place in carrying on the contract, and maintain from the beginning of twilight through the whole of every night, on or near the obstruction sufficient lights and guards to protect travelers from injury thereby, and if, after one notification from the Commissioner that said lights and guards are not sufficient, the Contractor has not placed additional lights and guards to the satisfaction of the Commissioner, the Commissioner shall have the right to take charge of that part of the work at the expense of the Contractor. While the work is suspended he shall keep all roadways and sidewalks in proper condition, and when the work is completed put the place and vicinity in proper condition and so leave them.

2. The Contractor shall provide proper means of access to property where the existing access is cut off by the Contractor and replace or put in good condition every conduit, catch-basin, tree, wall, fence, or other thing injured by the Contractor in carrying on the contract, unless the same has been permanently done away with, on approval of the Commissioner, as being necessary to the proper carrying on of the contract.

3.

## **ARTICLE 15**

### **Guaranty**

1. Any settlement or other defect, or the failure of any part of the structure or the work due to defective materials or workmanship, that occurs within one year after the work is completed, is to be immediately repaired by the Contractor. In the event of any such settlement, defect, or failure causing liability to the City for damage to persons or property, the Contractor does by this clause agree to hold the City harmless and to assume the defense of any claims therefor.

2. Responsibility under this guaranty for the adequacy of the work does not relieve the Contractor of his obligation to comply with the terms of the contract and to conform to all the requirements of the plans and specifications, nor does it give him the right to deviate in any way from the details of design of the structure or the work.

## **ARTICLE 16**

### **Defective Work and Materials**

The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his contract as herein described, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work or materials, or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Engineer, and if any material brought upon the ground for use in the work or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, but all materials shall, upon being so attached or affixed, become the property of the City.

## **ARTICLE 17**

### **Employment of Labor**

The Contractor shall give preference in employment, first to citizens of Massachusetts, second, to other citizens of the United States; and shall allow all employees on said work to lodge, board and trade where they choose, and shall not obstruct any other person in doing work for the City; and shall conform to all labor laws of the Commonwealth; and no laborer or teamster, workman or mechanic working within this Commonwealth in the employ of the Contractor or Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the Contractor shall be requested to, or required to, or work more than eight hours in any one calendar day. This contract is subject to all the laws of the Commonwealth, and ordinances of the City and if any clause thereof does not conform to such laws and ordinances, such clause shall be void and such laws and ordinances operated in lieu thereof.

**ARTICLE 18**  
**Laws and Regulations - Contractor to Comply with Law**

The Contractor shall keep fully informed of all existing or future acts of the legislature, and of all municipal ordinances, prohibitions, rules and regulations in any manner affecting the conduct of the work, and of all orders or decrees of any body or tribunal having any jurisdiction or authority over the materials, times, places and actions of those employed in the work embraced in the contract. The Contractor shall at all times observe and comply with all existing and future acts, ordinances, prohibitions, rules, regulations, orders and decrees; and shall protect and indemnify the city and its employees against any and all claims arising from or based on any violation of such acts, ordinances, prohibitions, rules, regulations, orders or decrees, and against all violations of law by the Contractor or his agents or employees.

**END OF SECTION**



## **SPECIAL PROVISIONS**

### **WASHINGTON STREET AT HARVARD STREET INTERSECTION, SAFETY IMPROVEMENTS**

#### **SCOPE OF WORK**

The work under this Contract consists of furnishing all necessary labor, materials and equipment required for roadway and traffic signal improvements at Washington Street and Harvard Street intersection in the City of Newton, Massachusetts. The work includes, but is not limited to:

- Installation of curb extensions including new granite curb, new cement concrete sidewalk and curb ramps,
- Mill and overlay of the existing roadway pavement,
- Removal of existing rectangular rapid flashing beacons, mast arms and foundations
- Complete traffic signal installation with vehicle detectors, emergency preemption, signal posts, signal heads, mast arms and assemblies, controller cabinets, foundations, pullboxes, conduit, wire and cable, communication links for a traffic signal control system, and electrical service connection and all other equipment, materials and incidental costs necessary to furnish, install and program a complete and functioning traffic control system as specified and as shown in the contract documents,
- Installation of traffic signs and pavement markings, and other miscellaneous items of work as shown on the plans and described herein.
- Additional sidewalk reconstruction beyond the project limit as shown on plans to Court Street to be included in project as directed and designed on site by City during construction.

An Add Alternate has been included for upgrading the pedestrian push buttons, traffic signal controller, cabinet and foundation at the Washington Street at Crafts Street intersection and installing and optimizing coordination between the two intersections. **The additional work included in the Add Alternate will be performed only at the approval of the City.**

All work done under this contract shall be in conformance with the City of Newton Standard Specifications; Massachusetts Highway Department Standard Specifications for Highways and Bridges dated 1988, the Supplemental Specifications dated June 15, 2012, and the Standard Special Provisions dated June 3, 2011; the 2016 Construction Standard Details, the 1996 Construction and Traffic Standard Details (as relates to traffic standard details only); the 2009 Manual on Uniform Traffic Control Devices with the latest revisions and Massachusetts Amendments; the 1968 Standard Drawings for Traffic Signals and Highway Lighting; the latest edition of American Standard for Nursery Stock; the Plans and these Special Provisions. **Please note: Each pay item shall conform to the Massachusetts Department of Transportation Standard Specifications and to the provided Special Provisions provided in this Bid Document for Items marked with an asterisk (\*) in the Bid Tab (Items List) below. (All other items shall conform to the latest Massachusetts Department of Transportation Standard Specifications.)**

Plans and Specifications for the work on this traffic signal installation refer to those drawings and documents prepared by the City of Newton.

**The City of Newton reserves the right to change, modify, increase or decrease the limits of work. Any work beyond the limit of project as shown on the plans shall be design on site by the City with the Contractor. All work shall be performed in accordance with these Specifications.**

The General Conditions, Supplementary Conditions and these Special Provisions shall take precedence over the General Requirements of Division 1 of the Standard Specifications of the Massachusetts Department of Transportation (MassDOT).

## **MAINTENANCE OF TRAFFIC SIGNALS**

The Contractor shall provide all labor, equipment and material required for the total maintenance of all existing and proposed traffic signal control equipment, within the project limits, including damage by automobile accidents, unless otherwise specified under Subsection 7.17 "Traffic Accommodation" of the Standard Specifications, as amended, in which case Subsection 7.17 will govern. These provisions will apply to the signalized locations included as part of the Contract from the date of written notice given to the Engineer that the Contractor will begin work on the signals until the date when the Engineer shall recommend acceptance of the completed project. This written notice must be given before the Contractor may proceed with any work on the specified traffic signal system. For the purpose of these paragraphs, the phrase "Traffic Signal Control Equipment" is intended to include, but is not limited to, controllers, detectors, signal housings, supporting structures, cabinets, wires, conduit and all other ancillary electrical equipment used for traffic control.

The cost of maintenance of signals shall be deemed to be included in the various traffic signal contract items, and no additional payments shall be made therefore, except as provided by Subsection 7.17 of the Standard Specifications as amended.

## **FINE TUNING, ADJUSTMENT AND TESTING PERIOD**

After the Contractor has finished installing the signal equipment at the intersection and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. The Contractor shall advise the City in writing of the date of the beginning of the fine-tuning and testing period.

During this period, the Contractor, under the direction of the Engineer will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall not less than 30 days. The contract completion date shall take this testing period into consideration. No request for final acceptance will be considered until successful completion of the testing period.

## **FINAL INSPECTION AND ACCEPTANCE**

Upon successful completion of the 30-day testing period wherein the traffic signal installation has operated for 30 days without failure, the contractor shall notify the Engineer. The Engineer will make a final inspection of the installation in the presence of the City and the Contractor. An inspection check will be made to insure that all equipment, materials, installation and operations are in accordance with the construction contract, plans and specifications. Items to be checked will include, but not be limited to, traffic controller operation, controller cabinet equipment, detection equipment, operation, signal, wiring, documents (wiring diagrams, as-built plans, instruction manuals, parts lists, warranties, grounding resistivity test report, loop detector test report, etc.), signs, and pavement markings, and street hardware (posts, bases, housings, mast arms, brackets, pull boxes, etc.).

The Engineer will notify the Contractor in writing of any items in which the inspection reveals that the work is incomplete, defective, or does not otherwise meet the project specifications. The Contractor shall perform the corrective actions necessary to achieve final acceptance by the City. These corrective actions shall be done by and at the expense of the Contractor, and within 15 days of the date of the inspection report, unless otherwise approved in writing by the City.

The Contractor shall insert prices for each item in ink, in both words and figures, and is to show a total bid price. In the event a discrepancy between the written words and figures, the written words shall govern. In the event an error in the bidders total bid price, the corrected total bid obtained by the summation of the products of the unit prices multiplied by the respective quantities shall stand as the bidder's total bid price.

The Contractor is required to review any related plans, conduct a full site review, and read all the provisions in the document before inserting prices, and is further advised to make his own determination as to the accuracy of the estimated quantities before inserting bid prices.

The estimated quantities shown here are based solely upon a reasonable assessment of the project parameters, thus the Contractor is advised that the actual quantities may vary substantially as field conditions may necessitate.

## **SHOP DRAWINGS**

The contractor shall submit six (6) copies of shop drawings for all traffic related components of this project.

**NOTICE:**

The description of work for each Item is set forth starting at p. 87. If an Item does not have a corresponding Scope of Work, the MassDOT Standard Specifications for Highways and Bridges shall apply.

**This bid is based on estimated quantities, which are the City's best estimate based on prior experience. Actual quantities may be more or less than those estimated. Regardless of the amount of the actual quantities, the unit price(s) shall be that set forth in these Bidder's Item Sheets.**

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>102.2 - TREE TRIMMING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>LUMP SUM</b>	LS	1			
*ITEM: <b>102.51 - INDIVIDUAL TREE PROTECTION</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	EA	1			
*ITEM: <b>120. – EARTH EXCAVATION</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	CY	400		20	
ITEM: <b>141.1 – TEST PIT FOR EXPLORATION</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	CY	5			
ITEM: <b>151. – GRAVEL BORROW</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	CY	260		15	

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
ITEM: <b>170. – FINE GRADING AND COMPACTING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	<b>SY</b>	<b>950</b>		<b>60</b>	
ITEM: <b>191. –DRIVE SAMPLE BORINGS</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>40</b>			
ITEM: <b>191.10 – HOLLOW STEM AUGER BORING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>30</b>			
TEM: <b>191.11 – CORE BORING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>30</b>			
ITEM: <b>193. MOBILIZATION AND DISMANTILING OF BORING EQUIPMENT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>LUMP SUM</b>	<b>LS</b>	<b>1</b>			
*ITEM: <b>220.7 – SANITARY STRUCTURE ADJUSTED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>3</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>220.8 – SANITARY STRUCTURE REMODELED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
*ITEM: <b>222.3 – FRAME AND GRATE (OR COVER)</b> <b>MUNICIPAL STANDARD</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
*ITEM: <b>357. – GATE BOX</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
ITEM: <b>358. – GATE BOX ADJUSTED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>5</b>			
*ITEM: <b>381. – SERVICE BOX</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
ITEM: <b>381.3 – SERVICE BOX ADJUSTED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>5</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>415. – PAVEMENT MICROMILLING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQUARE YARD</b>	<b>SY</b>	<b>1,960</b>			
ITEM: <b>460. – HOT MIX ASPHALT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>TON</b>	<b>TON</b>	<b>230</b>			
ITEM: <b>464. – ASPHALT EMULSION FOR TACK COAT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>GALLONS</b>	<b>GAL</b>	<b>200</b>			
ITEM: <b>464.5 – HOT POURED RUBBERIZED ASPHALT SEALER</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>1,540</b>			
*ITEM: <b>472. – HOT MIX ASPHALT FOR MISCELLANEOUS WORK</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>TON</b>	<b>TON</b>	<b>25</b>		<b>1</b>	
*ITEM: <b>482.6 – SAWING PAVEMENT AND SIDEWALK JOINTS</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>1,400</b>		<b>70</b>	

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
ITEM: <b>504. – GRANITE CURB TYPE VA4-STRAIGHT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>470</b>			
ITEM: <b>504.1 – GRANITE CURB TYPE VA4-CURVED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>110</b>			
ITEM: <b>509. – GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>40</b>			
ITEM: <b>509.1 – GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>40</b>		<b>30</b>	
ITEM: <b>516. – GRANITE CURB CORNER TYPE A</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>6</b>			
*ITEM: <b>627.3 – STEEL THRIE BEAM TERMINAL SECTION (SINGLE FACED)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>1</b>			



ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>645.072 – 72 INCH CHAIN LINK FENCE (PIPE TOP RAIL) (LINE POST OPTION)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>50</b>			
*ITEM: <b>653.072 -72 INCH CHAIN LINK FENCE CORNER OR INTERMEDIATE BRACE POST</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>5</b>			
*ITEM: <b>665. – CHAIN LINK FENCE REMOVED AND STACKED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>50</b>			
*ITEM: <b>666. – CHAIN LINK FENCE REMOVED AND RESET</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>100</b>			
ITEM: <b>701. – CEMENT CONCRETE SIDEWALK</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE YARD</b>	<b>SY</b>	<b>700</b>		<b>30</b>	
ITEM: <b>701.1 – CEMENT CONCRETE SIDEWALK AT DRIVEWAYS</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE YARD</b>	<b>SY</b>	<b>110</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>701.2 – CEMENT CONCRETE WHEELCHAIR RAMP</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE YARD</b>	<b>SY</b>	<b>120</b>		<b>40</b>	
ITEM: <b>703. – HOT MIX ASPHALT DRIVEWAY</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>TON</b>	<b>TON</b>	<b>10</b>			
*ITEM: <b>751. – LOAM BORROW</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	<b>CY</b>	<b>14</b>			
*ITEM: <b>765. - SEEDING</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE YARD</b>	<b>SY</b>	<b>100</b>			
*ITEM: <b>767.6 – AGED PINE BARK MULCH</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	<b>CY</b>	<b>2</b>			
*ITEM: <b>804.3 – 3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC-(UL)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>800</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
ITEM: <b>811.30 – PULL BOX 8 X 23 INCHES - SD2.030</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>1</b>			
ITEM: <b>811.31 – PULL BOX 12 X 12 INCHES - SD2.031</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>5</b>			
*ITEM: <b>813.81 – SERVICE CONNECTION (UNDERGROUND)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>LUMP SUM</b>	<b>LS</b>	<b>1</b>			
*ITEM: <b>815.1 – TRAFFIC CONTROL SIGNAL LOCATION NO. 1</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>LUMP SUM</b>	<b>LS</b>	<b>1</b>			
*ITEM: <b>816.01 TRAFFIC SIGNAL RECONSTRUCTION – LOCATION 2</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>LUMP SUM</b>	<b>LS</b>	<b>0</b>		<b>1</b>	
ITEM: <b>815.98 – FOOTING COST ADJUSTMENT</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>10</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
<b>ITEM: 832. – WARNING-REGULATORY AND ROUTE MKR – ALUM. PANEL (TYPE A)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE FOOT</b>	<b>SF</b>	<b>80</b>			
<b>ITEM: 847.1 – SIGN SUP (N/GUIDE) + RTE MKR W/I BRKWAY POST ASSEMBLY - STEEL</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>5</b>			
<b>ITEM: 852. – SAFETY SIGNING FOR CONSTRUCTION OPERATIONS</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQYARE FOOT</b>	<b>SF</b>	<b>120</b>			
<b>ITEM: 853.1 – PORTABLE BREAKAWAY BARRICADE TYPE III</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>3</b>			
<b>ITEM: 856.12 – PORTABLE CHANGEABLE MESSAGE SIGN</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>DAY</b>	<b>DAY</b>	<b>180</b>			
<b>ITEM: 859. – REFLECTORIZED DRUM</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>DAY</b>	<b>DAY</b>	<b>1,900</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
<b>ITEM: 864.04 – PAVEMENT ARROWS AND LEGENDS REFL. WHITE (THERMOPLASTIC)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>SQUARE FOOT</b>	<b>SF</b>	<b>80</b>			
<b>*ITEM: 866.104 – 4 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>700</b>			
<b>*ITEM: 866.112 – 12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>460</b>			
<b>*ITEM: 867.104 – 4 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>FOOT</b>	<b>FT</b>	<b>420</b>			
<b>*ITEM: 874. – STREET NAME SIGN</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
<b>*ITEM: 874.2 – TRAFFIC SIGN REMOVED AND RESET</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			

ITEM DESCRIPTION & BID PRICE	UNIT	BASE CONTRACT		ADD ALTERNATE	
		QTY.	TOTAL COST	QTY.	TOTAL COST
*ITEM: <b>874.4 – TRAFFIC SIGN REMOVED AND STACKED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
*ITEM: <b>875.1 – PARKING METER REMOVED AND RESET</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>10</b>			
*ITEM: <b>875.2 – PARKING METER REMOVED AND STACKED</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>EACH</b>	<b>EA</b>	<b>2</b>			
*ITEM: <b>904. – 4000 PSI, ¾ INCH. 610 CEMENT CONCRETE</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>CUBIC YARD</b>	<b>CY</b>	<b>5</b>			
*ITEM: <b>999. – POLICE DETAILS</b> THE SUM OF:  _____ DOLLARS  AND _____ CENTS  (\$ _____) PER <b>HOUR</b>	<b>HR</b>	<b>800</b>		<b>40</b>	
<b>TOTAL</b>					

**TOTAL BID PRICE:**

*(Total Bid Price must be inserted in Paragraph C of BID FORM #17-64, page 9).*

## **ITEM DESCRIPTIONS (WHERE NOT IN STANDARD MASSDOT ITEMS SPECS)**

### **ITEM 102.2**

### **TREE TRIMMING**

### **LUMP SUM**

The work under this item shall conform to the relevant provisions of Section 8.08 and 101 of the Standard Specifications and the following:

#### **GENERAL**

The work shall include the trimming of hanging tree limbs and branches within the right-of-way which may conflict with the installation of traffic signals and to provide clear visibility of proposed traffic signs and traffic signals, and provide clear intersection sight distance within the project limits

The trees to be trimmed shall be determined by the City Tree Warden and all work shall be done to the satisfaction of the City. Approximate locations will be designated in the field by the City.

The Contractor is responsible for the protection of all existing trees and plants within and immediately adjacent to the construction area that are not designated to be trimmed.

Incidental to the cost of this item, the Contractor shall retain the services of a certified arborist, who shall make recommendations as to the specific appropriate treatment of trees within or near the work zone.

#### **SUBMITTALS**

All tree trimming work will be performed by a Massachusetts Certified Arborist. Prior to start of work, the Contractor shall submit to the City the name and certification number of the Massachusetts Certified Arborist referenced herein. Cost for Certified Arborist for all activities pertaining to this item shall be incidental to this item.

#### **CUTTING AND PRUNING**

The Contractor shall retain the services of the Massachusetts State Certified Arborist to oversee any cutting of limbs. All cuts shall be clean and executed with an approved tool. Under no circumstances shall pruning be performed with mechanical equipment that might damage the remaining trees.

#### **TREE DAMAGE**

The Contractor shall be held responsible for the health and survival of the existing trees in the immediate vicinity of the construction area. Damage that, in the City's opinion, can be remedied by corrective measures shall be repaired immediately. Broken limbs shall be pruned according to industry standards. Wounds shall not be painted. Trees or shrubs that are damaged irreparably shall, at the City's discretion, be replaced per the requirements under the heading of Preservation of Roadside Growth of these Special Provisions. Cost of replacement of trees shall be borne by the Contractor.

#### **BASIS OF PAYMENT**

Compensation will be paid at the contract unit price lump sum under Item 102.2. This shall include full compensation for all labor, equipment, materials and incidental for the satisfactory completion of the work, including the services of a certified arborist, water and fertilizer and the subsequent removal and satisfactory disposal of the tree trimmings.

The work under this item shall conform to the relevant provisions of Sections 101 and 771 and the following:

**GENERAL**

The work of this Item consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to protect existing trees, shrubs, and other plant materials located with the sidewalk repair areas, as directed by the City.

**EXAMINATION OF CONDITIONS**

The Contractor shall be solely responsible for judging the full extent of the work requirements, including, but not necessarily limited to any equipment and materials necessary for providing tree protection.

Prior to any construction activities, the Contractor and Arborist shall walk the site with the City Tree Warden to identify which trees will require protection and to determine approved measures. The Arborist shall make recommendations as to appropriate methods to trees. The City will have final decision as to trees and methods.

The Contractor is responsible for the protection of all existing trees and plants within and immediately adjacent to the construction area that are not designated to be removed for the length of the construction period.

Incidental to the cost of this item, the Contractor shall retain the services of a certified arborist, who shall make recommendations as to the specific appropriate treatment of trees within or near the work zone.

**SUBMITTALS**

Incidental to this item, the Contractor shall provide to the City one (1) copy each of “Standards for Pruning Shade Trees” of the National Arborist Association, 174 Route 101, Bedford, New Hampshire, 03102, and American National Standards Institute (ANSI) Standard Z-133.1 and A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance, Part 1: Pruning. These references shall be kept by the Commissioner at his office for the length of the Contract.

Prior to start of work, the Contractor shall submit to the Commissioner the name and certification number of the Massachusetts Certified Arborist referenced herein. Cost for Certified Arborist for all activities pertaining to this Item shall be incidental to this item.

**MATERIALS**

Fence and temporary fence posts shall be subject to the approval of the Commissioner. Fencing for individual plants shall be polyethylene fencing or chain link fence (new or used).

Staking for individual tree protection fencing shall be 2x4 inch stock as directed and approved by the City.

Wood chips or mulch shall conform to provisions under Materials Sections M6.04.0 through M6.04.5 depending on the material selected by the Certified Arborist and the Tree Warden.

Trunk protection shall be 2x4 inch cladding, at least 8 feet in length, clad together with wire. Trunk protection shall include burlap.



Temporary Tree Protection Fence shall be brightly colored Polypropylene barricade or wooden snow fencing for tree protection or safety fencing as shown on the Contract drawings or as directed by the Commissioner. Fencing shall be a minimum of 4 feet high and supported by steel or hardwood stakes spaced at a maximum of 8 feet on center or by other means acceptable to the Commissioner.

Incidental to this item, the Contractor shall provide water for maintaining plants in the construction area that will have exposed root systems for any period during construction.

## **CONSTRUCTION METHODS**

To the extent possible, to avoid soil compaction within the root zone, construction activities including, but not limited to, vehicle movement, excavation, embankment, staging and storage of materials or equipment shall not occur underneath the canopy (drip line) of trees to remain. Where these activities will occur within 10 feet of the canopy of trees, the Contractor shall provide Individual Tree Protection as specified herein.

### **Tree Fencing and Armoring**

For individual tree protection, the Contractor shall set posts and fencing at the limits of the tree canopy. Where construction activities closer to the trees is unavoidable, the contractor shall tie branches out of the way and place wood chips or mulch as selected by the Certified Arborist and the Tree Warden to a depth of 6 inches on the ground to protect the root systems. The Contractor shall wrap the area of the trunk of the tree with burlap prior to armoring with 2x4 inch cladding. Cladding for tree trunks shall extend from the base of the tree to at least 8 feet from the base.

To the extent possible, temporary landscaped fencing shall be installed at the limit of tree canopy and shall be staked and maintained vertical for the length of the contract.

Where excavation within canopy is unavoidable, the Contractor shall use equipment and methods that shall minimize damage to the tree roots, per recommendations of the Certified Arborist and Tree Warden. Such methods may require root pruning prior to, as well as during, any excavation activities and may, at the discretion of the Certified Arborist and the Tree Warden, include coating faces with an emulsified asphalt or other acceptable coating. The removal of roots 1 inch or larger will require approval by the Tree Warden or his designee prior to their removal and procedures for their removal will be as directed by the Tree Warden. All roots less than 1" that must be removed shall be removed using a sharp instrument to insure a clean, sharp cut is made. The tearing of roots shall be considered a wound to the tree. The incorrect removal of roots can lead to the death of a street tree. At the discretion of the Certified Arborist and the Tree Warden, wood chips or mulch may be required in all excavations adjacent to tree routes will be filled with mulch.

All fencing, trunk protection, branch protection, and woodchips or mulch shall be maintained throughout the duration of the contract. Protective fencing shall be repaired and woodchips or mulch replaced as necessary during the duration of the contract at no additional cost.

### **Cutting and Pruning**

Some pruning of roots and branches may be a necessary part of construction. Pruning will be performed on the same side of the tree that roots have been severed.

The Contractor shall retain the services of a Massachusetts State Certified Arborist to oversee any cutting of limbs, stem or roots of existing trees. All cuts shall be clean and executed with an approved tool. Under no circumstances shall excavation in the tree protection area be made with mechanical equipment that might damage the existing root systems. Any tree root area exposed by construction shall be covered and watered immediately. Exposed tree roots shall be protected by dampened burlap at all times until they can be covered with soil.

## **Watering**

Water each tree within the construction area where work is in progress twice per week until the surrounding soil of each tree is saturated for the duration of construction activities.

## **Removal of Protection**

After all other construction activities are complete, but prior to final seeding, wood chips or mulch (at the discretion of the Certified Arborist and the Tree Warden), temporary fencing, branch protection, and trunk protection materials shall be removed and disposed off-site by the Contractor at no additional cost.

## **Tree Damage**

The Contractor shall be held responsible for the health and survival of the existing trees in the immediate vicinity of the construction area. Damage includes, but shall not be limited to, injury to the bark, branches, cambium, or removal of roots, which is not carried out in accordance with the guidelines set forth in this document. Damage that, in the Commissioner's opinion, can be remedied by corrective measures shall be repaired immediately. If damage is done to a tree during the installation work, the supervisor on the job shall immediately notify the DPW of the location of the tree and the type of injury. The Contractor shall be required to use proper arboricultural practices to repair any damage caused to trees. If the repair of damage to trees is not performed in a timely and proper arboricultural manner, the City reserves the right to have the damage corrected by a Massachusetts Certified Arborist. The Contractor shall be responsible for the costs of any repairs. Broken limbs shall be pruned according to industry standards. Wounds shall not be painted unless directed by the Certified Arborist and the Tree Warden. Trees or shrubs that are damaged irreparably shall, at the Commissioner's discretion, be replaced at a 1:1 caliper inch ratio. Cost of replacement trees shall be borne by the Contractor.

## **BASIS OF PAYMENT**

Where individual trees are to remain where grading, construction or other disturbance will take place within the parameters specified above; or where the Commissioner determines that an individual tree must be protected, these trees shall be protected and paid for under ITEM 102.51, INDIVIDUAL TREE PROTECTION.

Item payment shall be scheduled throughout the length of contract: 30 percent of value shall be paid upon installation, 30 percent approximately halfway through the contract, and the remainder to be paid at the end of the contract after completion of construction operations that would disturb plants and after the protection materials have been removed and properly disposed of off-site by the Contractor.

Work under this item shall be paid at the Contractor bid price per Each under Item 102.51 which payment shall include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work, including the services of a certified arborist, water and fertilizer, the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract, and all incidental items involved in tree protection.

Cost of wood chips or mulch, as required, shall be incidental to this item.

## **ITEM 120.**

## **EARTH EXCAVATION**

## **CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and more specifically, shall consist of the excavation and satisfactory disposal of all materials encountered within the limits of the contract, except those classified and paid for under other items.

## **GENERAL**

The work shall include the removal and satisfactory disposal of rubbish, debris and other items not being reused, such as cement and asphalt sidewalks, asphalt and cement concrete curb, concrete posts and fences, unused conduit and hand holes, and unsuitable frames, grates, meter post and covers to be reuse in the judgment of the City and unsuitable for salvage.

Edges of excavations made in existing pavements shall be squared by sawcutting with power-driven tools to provide a neat, clean edge for joining new pavement as shown on the plans. Ragged, uneven edges shall not be accepted. Pavement areas, which have been broken or undermined, shall be edged neatly with a minimum disturbance to remaining pavement. Payment for sawcutting at the limits of work at the milling area shall be included under Item 129. Pavement Milling

## **BASIS OF PAYMENT**

The contract price shall include full payment for all labor, equipment, and materials required to remove and dispose of all materials encountered within the limits of the contract, except those classified and paid for under other items.

Work under this item shall be paid at the Contractor bid price per Cubic Yard under Item 102. which payment shall include full compensation for all labor, equipment, materials required to remove and dispose of all materials and incidentals for the satisfactory completion of the work.

### **ITEM 220.7** **ITEM 220.8**

### **SANITARY STRUCTURE ADJUSTED** **SANITARY STRUCTURE REMODELED**

### **EACH** **EACH**

## **GENERAL**

The work under these items shall conform to the relevant provisions of Section 220 and shall be applicable to all types of municipal structures, including drainage and sanitary structures, where existing castings are to remain.

The Contractor shall take every precaution and care not to damage the structural condition of the existing sanitary structure. The Contractor will be fully responsible for any damage to the existing sanitary structure resulting from his work.

The brick for sanitary structures shall be sound, hard and uniformly burned brick, regular and uniform in shape and size, of compact texture and satisfactory to the Engineer. Brick shall comply with ASTM Standard Specifications for sewer brick (made from clay or shale), Designation C-32- 63 or Grade SA, hard brick, except that the mean of five tests for absorption shall not exceed 8 percent by weight. Rejected brick shall be immediately removed from the work and brick satisfactory to the Engineer substituted.

## **DAMPPROOFING**

Sanitary manholes remodeled shall be paid for at the contract unit price bid per each price for remodeling of the existing manhole. The contract price shall include payment for all the required labor, equipment and materials necessary to perform the work of this section. Payment will include the cost of excavation, protection of the existing manhole, backfilling, compaction and final grading.

## **METHOD OF MEASUREMENT**

Sanitary structure adjusted will be measured for payment by each when the change is 6 inches or less to be paid by each of the structure. Sanitary structure remodeled will be measured for payment by each when the change is between 6 inches and 1 foot to be paid by each of the structure. Removed and reset of the structure casting to the final grade.

## **BASIS OF PAYMENT**

Work under these items shall be paid at the Contractor bid price per Each for Item 220.7 Sanitary Structure Adjusted and Item 220.8 Sanitary Structure Remodeled respectively which price shall include all labor, materials, equipment and incidental costs required to complete the work. Removing and resetting of the frame and cover to the proposed grade for structures designated to be adjusted or remodeled shall be consider as incidental to the these items.

## **ITEM 222.3    FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD    EACH**

Work to be done under this item shall conform to the relevant provisions of Sections 201, 220, and the following:

### **GENERAL**

This work shall consist of removing and replacing the existing frame and grate or covers in locations directed by the City. Frame and grates or covers shall be municipal standard manufactured by East Jordon Iron Works (EJIW), a.k.a. LeBaron Foundry, Inc.; Neenah Foundry, Inc.; E. J. Prescott, Inc. and the following:

### **MATERIALS**

All Manhole Cover Frames shall be as manufactured by EJ a.k.a. East Jordon Iron Works meeting the following: EJIW product #00211011 (LK110A, 8 inch deep)

Drain Manhole Covers shall be EJIW product #00211025  
(The word DRAIN in 3 inch letters shall be cast into the cover)

Sewer Manhole Covers shall be EJIW product #00211023  
(The word SEWER in 3 inch letters shall be cast into the cover)

Catch Basin Grates shall be EJIW product #00552060  
Catch Basin Frames with 3 flanged sides shall be EJIW product #00552311  
Catch Basin Frames with 4 flanged sides shall be EJIW product #00552411

### **CONSTRUCTION METHOD**

Castings shall be set, as directed by City, so that final grade of the manhole cover or catch basin grate is flush with the final course of hot mix asphalt pavement. Material around the structure shall be compacted and high early strength concrete collars shall be placed around the castings. High early strength concrete shall be 4,000 PSI at 28 day test, 3/4" aggregate, 5% air entrained, and have a maximum 4" slump.

## **BASIS OF PAYMENT**

Work under this Item shall be paid at the Contractor bid price per Each for Item 222.3, which shall include full compensation for labor, equipment, tools, disposal of existing covers and grates as directed by the City, and any incidentals necessary for the satisfactory completion of the work as specified. Should the City request certain castings be delivered to and stacked at the City DPW facility located at 110 Crafts Street, the cost shall be considered incidental to this item.

**ITEM 357.**  
**ITEM 381.**

**GATE BOX**  
**SERVICE BOX**

**EACH**  
**EACH**

The work to be done under these items shall conform to the relevant provisions of Section 301 of the Standard Specifications and the following:

## **GENERAL**

The work shall consist of replacing, furnishing and installing a new water gate box or service box consisting of top and bottom pieces, where determined and directed by the City, prior to repaving the roadway pavement or construction the sidewalk. The size shall be set based on the size being replaced or as directed by City and all sizes shall be included in Item 357 or Item 358.

Water gate box to be replaced shall meet the Newton DPW standards and conform to AWWA C800, as manufactured by Hays Water Service Products or equal.

Service boxes to be replaced shall meet the Newton DPW standards, cast iron tops and bottoms, slip type, with water written on the cap. Shop drawings for service boxes and water gate boxes shall be submitted to the City for approval prior to installation.

The gate box and service box shall be set so that final grade of the cover is flush with the finish cement concrete sidewalk grade or roadway grade. Back fill material around the gate box and service box shall be compacted. Gate boxes set in roadways shall have a 6 inch collar of hot mix asphalt binder or high early strength concrete 4,000-PSI placed around the gate box.

## **BASIS OF PAYMENT**

Work under these items shall be paid at the Contractor bid price per Each for Item 357 Gate Box and Item 381. Service Box respectively. Such payment shall be considered full compensation for all materials, labor, equipment, tools, and any incidentals necessary for the satisfactory completion of the work as specified. The cost for disposal of discarded gate boxes or stacking at the City DPW facility at the direction of the City or his representative shall be considered incidental to the cost of these items

**ITEM 415.**

**PAVEMENT MICROMILLING**

**SQUARE YARD**

All references to Section 130 Pavement Milling within Section 450 Hot Mix Asphalt Pavement shall be replaced by Item 415 Pavement Micromilling.

## **Description**

### **415.20 General.**

This work shall consist of micromilling and removal of existing Hot Mix Asphalt (HMA) pavement courses from the project by the Contractor. Micromilling shall be performed in conformity with the approved QC Plan. The Contractor shall present and discuss in sufficient detail the Quality Control information and activities related to milling at the Construction Quality Meeting required under Section 450. Unless otherwise specified, the milled material shall become the property of the Contractor.

## **Construction Procedures**

### **415.60 General.**

All construction procedures under Pavement Micromilling shall also conform to any of the following relevant provisions of Pavement Milling:

#### **Milling Equipment Requirements.**

The milling equipment shall be self-propelled with sufficient power, traction, and stability to remove the existing HMA pavement to the specified depth and cross-slope. The milling machine shall be capable of operating at a minimum speed of 10 feet (3 meters) per minute, designed so that the operator can at all times observe the milling operation without leaving the control area of the machine, and equipped with the following:

- a) A built in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results.
- b) Longitudinal controls capable of operating from any longitudinal grade reference, including string line, 30 foot (10 meter) ski minimum, 30 foot (10 meter) mobile string line minimum, or a matching shoe.
- c) The transverse controls shall have an automatic system for controlling cross-slope at a given rate.
- d) Cutting heads able to provide a minimum 6 foot (2 meter) cutting width and a 0 to 4 inch (0 to 100 mm) deep cut in one pass. The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.
- e) An integral pickup and conveying device to immediately remove milled material from the roadway and discharge the millings into a truck, all in one operation.
- f) All necessary safety devices such as reflectors, headlights, taillights, flashing lights and back up signals so as to operate safely in both day and night.
- g) A means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a smaller or lesser-equipped milling machine may be permitted when approved by the City.

#### **Sweeper Equipment Requirements**

The Contractor shall provide a sufficient number of mechanical sweepers to ensure that the milled surface is free of millings and debris at the end of each day's milling operations. Each sweeper shall be equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper. The sweepers shall be capable of removing millings and loose debris from the textured pavement.

#### **Milling Operations**

The milling operations shall be scheduled to minimize the duration and placement of traffic on the milled surface. The milling operations shall not proceed more than 3 miles ahead of the paving operations. Under no circumstances shall the milled surface be left exposed to traffic for a period exceeding seven days. The Engineer may allow the Contractor to adjust the above limitations on milling production when necessary.



The Contractor shall coordinate milling and paving operations to minimize the exposure of milled surfaces to traffic. The Contractor shall ensure that milled surfaces are overlaid in a timely manner to avoid damage to the pavement structure. Any damage to the pavement structure resulting from extended exposure of the milled surface to traffic shall be repaired as directed by the City at the Contractor's expense.

The existing pavement shall be removed to the average depth shown on the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established using a 30 foot (10 meter) mobile ski, mobile string line, or stationary string line. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, cross section, superelevation, and transitions shown on the plans or as directed by the Engineer. The requirement for automatic grade or slope controls may be waived by the Engineer in locations warranted by the situation, including intersections and closely confined areas.

The Engineer may adjust the average milling depth specified on the plans by  $\pm 3/4"$  ( $\pm 20\text{mm}$ ) during each milling pass at no additional payment to minimize delamination of the underlying pavement course or to otherwise provide a more stable surface. If delamination or exposure of concrete occurs when milling a HMA pavement course from an underlying Portland Cement Concrete (PCC) pavement, the Contractor shall cease milling operations and consult the Engineer to determine whether to reduce the milling depth or make other adjustments to the operation.

### **Protection of Inlets and Utilities**

Throughout the milling operation, protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense. To prevent the infiltration of milled material into the storm sewer system the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that falls into inlet openings or inlet grates shall be removed at the Contractor's expense.

### **Vertical Faces**

All permanent limits of the milled area shall be sawcut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition with a maximum 12:1 slope shall be established. If the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the temporary transition shall be constructed at a maximum 12:1 slope.

### **Opening to Traffic**

Prior to opening a milled area to traffic, the milled surface shall be thoroughly swept with a mechanical sweeper to remove all remaining millings and dust. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to comply with local, State, and Federal air pollution control laws and regulations. Any damage to vehicular traffic as a result of milled material becoming airborne is the responsibility of the Contractor and shall be repaired at the Contractor's expense. Temporary pavement markings shall be placed in accordance with the provisions of Subsection 850.64.

## Milled Surface Inspection

The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced shall be corrected by remilling at the Contractor's expense and to the satisfaction of the Engineer. The Contractor shall perform Quality Control inspection of all work items addressed as specified in the table below. Inspection activities during milling of HMA pavement may be performed by qualified Production personnel (e.g. Skilled Laborers, Foremen, Commissioners). However, the Contractor's QC personnel shall have overall responsibility for QC inspection. The Contractor shall not rely on the results of Department Acceptance inspection for Quality Control purposes. The Engineer shall be provided the opportunity to monitor and witness all QC inspection.

The milled surface of each travel lane shall be divided into longitudinal Sublots of 500 feet (150 meters). The Contractor shall perform a minimum of one random QC measurement within each Sublot with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. Additional selective QC measurements within each Sublot will be performed as deemed necessary by the QC personnel. All QC inspection results shall be recorded on NETTCP Inspection Report Forms. The Engineer will also randomly inspect a minimum of 25% of the Sublots. The Contractor shall perform surface texture measurements with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16" (1.6 mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

In isolated areas where surface delamination between existing HMA layers or a surface delamination of HMA on Portland Cement Concrete causes a non-uniform texture to occur, the straightedge surface measurement requirements stated in the preceding paragraph may be waived, subject to the approval of the Engineer.

Inspection Component	Items Inspected	Minimum Inspection Frequency	Point of Inspection	Inspection Method
Equipment	As Specified in QC Plan	Per QC Plan	Per QC Plan	Per QC Plan
Environmental Conditions	Protection of Inlets & Utilities	Per QC Plan	Existing Surface	Visual Check
	Removal of Millings & Dust	Per QC Plan	Milled Surface	Visual Check
Workmanship	Milling Depth	Per QC Plan	Milled Surface	Check Measurement
	Cross-Slope & Profile	Per QC Plan	Milled Surface	Check Measurement
	Milled Surface Texture	Per QC Plan	Milled Surface	Visual Check



	Milled Surface Roughness	Once per 500 feet per milled lane	Milled Surface per Subsection 410.67	10 foot standard straightedge
	Sawcut Limit Vertical Face	Per QC Plan	Sawcut Limits	Visual Check

#### **415.61 Micromilling Equipment Requirements.**

The micromilling machine shall be equipped with a drum specifically designed to provide the surface specified below

#### **415.62 Control Strip**

The Contractor shall micromill a control strip. The control strip shall be 500 feet minimum in length with a uniformly textured surface and cross slope, as approved by the Engineer.

The micromilled surface of the control strip shall provide a satisfactory riding surface with a uniform textured appearance. The micromilled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced in the control strip shall be corrected by additional micromilling at the Contractor's expense and to the satisfaction of the Engineer.

The micromilled pavement surface shall have a transverse pattern of 0.2 – 0.3 inch center to center of each strike area. The Contractor shall perform surface texture measurements with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove

adjacent to that ridge shall not exceed 1/16" (1.6 mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

#### **415.67 Micromilled Surface Inspection**

The Contractor shall perform Quality Control inspection of all work items addressed under Section 415. The Contractor shall not rely on the results of Department Acceptance inspection for Quality Control purposes.

The micromilled surface shall meet the requirements of 415.62.

### **COMPENSATION**

#### **415.80 Method of Measurement**

Pavement Micromilling will be measured for payment by the number of square yards (square meters) of area from which the milling of existing HMA pavement has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar utility structures.

## **415.81 Basis of Payment**

Micromilling, removal and disposal of existing HMA pavement will be paid for at the contract unit price per square yard (square meter) for Item 415. Pavement Micromilling. This price shall include all equipment, tools, labor, and materials incidental thereto. No additional payments will be made for multiple passes with the milling machine to remove the existing HMA surface to the grade specified.

No separate payments will be made for: performing handwork removal of existing pavement and providing protection around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractor's negligence; providing protection to underground utilities from the vibration of the milling operation; sawcutting micromilled limits; installing and removing any temporary transition; removing and disposing of millings; furnishing a sweeper and sweeping after milling. The costs for these items shall be included in the contract unit price for Pay Item 415. Pavement Micromilling.

## **ITEM 472. HOT MIX ASPHALT FOR MISCELLANEOUS WORK TON**

Work to be done under this item shall conform to the relevant provisions of Sections 142, 420, 460, 470, 501, 701 of the Standard Specifications and the following:

### **GENERAL**

This item shall be used for hot mix asphalt walkways and temporary access and egress to those properties abutting the work area as directed by the City. It shall also be used for temporary widening, temporary wheelchair ramp, restoration of pavement surface after construction stages, temporary patch for installation of drainage pipes, structures, conduits, and pavement patch repairs as directed by the City. The Contractor is advised that this material will be primarily used for hand work.

### **FOR TEMPORARY PATCHES IN ROADWAY AREAS TO BE RECONSTRUCTED**

All temporary patches shall be HMA binder course material placed in one layer 2 Inches thick. FOR

### **PERMANENT PATCHES IN MILLED PAVEMENT AREAS**

Patches in milled pavement areas shall be the same thickness as the existing pavement. Except that the patch thickness shall be 1 inch below the existing grade or even with the milled depth and placed in multiple layers of HMA binder material not more than 2 inches thick.

### **FOR TRANSITIONS AT MILLED PAVEMENT AREA LIMITS**

As directed, the contractor shall install temporary transitions not less than 2 feet long between milled and existing pavement joints to smooth transitions. Transition will be removed by the contractor before final pavement is placed.

### **FOR SIDEWALKS ABUTTING TREE ROOTS**

This item shall be used in sidewalk areas where existing tree roots will interfere with the installation of a normal width cement concrete sidewalk. The final thickness of sidewalk shall be 3 inches (2 inches of HMA sidewalk binder and 1 inch of sidewalk top course).

## **MATERIAL**

The Contractor shall use Class I Type I-1 hot mix asphalt, top course, for permanent patching asphalt pavements in lifts not to exceed 2 inches in thickness. The thickness of the patch shall match the existing pavement thickness or be a minimum of 5 inches in roadways. Areas to be patched shall be saw cut back 12" in order to provide straight lines for bonding and a neat, clean edge for joining new pavement and sidewalks through the pavement thickness. Sawcutting equipment shall be approved by the DPW Commissioner prior to commencing work. Ragged, uneven edges shall not be accepted. Areas which have been broken or undetermined shall be edged neatly with a minimum disturbance to remaining pavement.

## **BASIS OF PAYMENT**

Work under this Item shall be paid at the Contractor bid price per TON under Item 472. which shall include full compensation for saw-cutting, excavation, disposal, grading and compaction, preparation of sub-base, dust control, hot poured rubberized asphalt sealer, prime coat, tack coat, and sealing and sanding joints, and any other incidentals not covered under other items, complete as specified in the Contract Specifications. No separate payment for these items will be made. Additional gravel borrow, and adjustment of public utility structures including water service boxes, gate boxes and drainage structures to finished grade and replacement of frame and grates or covers (as directed) are not included in Item 472 and shall be included under the respective items.

### **ITEM 482.6**

### **SAWING PAVEMENT AND SIDEWALK JOINTS**

### **FOOT**

Work to be done under this item shall conform to the relevant provisions of Section 120 and 400 of the Standard Specifications and the following:

#### **GENERAL**

Work shall include sawcutting of existing asphalt pavements, driveway and sidewalk limits, and at the location of removal and resetting or installation of granite curb, ate reinforced cement concrete pavements, and sidewalks.

#### **CONSTRUCTION METHODS**

The existing pavement shall be saw cut through its full depth at the limits of milling and overlaying area, at the limits of sidewalk construction and the limits of private driveways and walkways that are to be removed for grading tie-in.

Where the existing pavement is designated to be milled and overlaid, the pavement shall be sawn to a depth that matches the proposed overlay.

Generally all abutting edges between new and old pavements shall be saw cut to provide a uniform, vertical surface for the proposed pavement joint to meet with the existing pavement. All edges of excavations made in existing pavements shall be squared by sawcutting with power driven tools to provide a neat, clean edge for joining new pavement or sidewalks.

As directed by the City, sawcutting shall be required in areas where an existing sidewalk abuts a building, retaining wall or storefront and a new sidewalk is proposed. The existing sidewalk shall be sawn a minimum of 6 inches from the building wall or storefront to provide safe removal of the material

## **BASIS OF PAYMENT**

The work under this Item shall be paid for at the Contractor bid price per FOOT under Item 482.6 for Sawing Pavement and Sidewalk Joints which shall be considered full compensation for all labor, materials, equipment needed to cut all thicknesses of existing pavement and incidental costs required to complete the work as specified.

Sawcut edges which become broken, ragged, or undermined as a result of the Contractor's operations shall be re-sawn prior to the placement of abutting proposed pavement at no additional cost to the Owner. Sawing will be measured for payment by the linear foot as measured along the length of the pavement surface regardless of the depth specified. Payment for sawcutting for the installation of catch basins, manholes, gate box, service box, pipe, temporary patching, conduit, curbing shall be considered incidental to the respective item and will not be paid for separately under Item 482.6.

## **THE CONTRACTOR SHALL NOTE:**

Cuts made in trench limits for conduit work will be included in the unit price under the respective items and will not be paid for separately under this Item 482.6.

<b><u>ITEM 627.3</u></b>	<b><u>STEEL THRIE BEAM TERMINAL SECTION</u></b>	<b><u>EACH</u></b>
	<b><u>(SINGLE FACED)</u></b>	

The work to be done under these items shall conform to the relevant provisions of Section 630 of the Standard Specifications and the following:

## **GENERAL**

Work under this item shall consist of removing, discarding of existing guardrail terminal end section, replacing, furnishing and installing a new terminal end section of the existing guardrail where determined and as directed by the City. The size, type and material of the new terminal end shall match with the existing or as directed by the City.

## **BASIS OF PAYMENT**

Work under this item shall be paid at the Contractor bid prices per Each for Item 627.3 Steel Thrie Beam Terminal Section (Single Faced) which price shall include full compensation of all labor, equipment, materials, removing and discarding of existing guardrail terminal sections furnishing and installing new terminal section and all incidental costs required to complete the work.

<b><u>ITEM 645.072</u></b>	<b><u>72 INCH CHAIN LINK FENCE (PIPE TOP RAIL)</u></b>	<b><u>FOOT</u></b>
	<b><u>(LINE POST OPTION)</u></b>	
<b><u>ITEM 653.072</u></b>	<b><u>72 INCH CHAIN LINK FENCE CORNER OR</u></b>	<b><u>EACH</u></b>
	<b><u>INTERMEDIATE BRACE POST</u></b>	
<b><u>ITEM 665.</u></b>	<b><u>CHAIN LINK FENCE REMOVED AND STACKED</u></b>	<b><u>FOOT</u></b>
<b><u>ITEM 666.</u></b>	<b><u>CHAIN LINK FENCE REMOVED AND RESET</u></b>	<b><u>FOOT</u></b>

The work under these Items shall conform to the relevant provisions of Section 665 and 901 of the Standard Specifications and the following:

## **GENERAL**

Work under these items shall consist of removing, stacking, resetting, replacing, furnishing and installing of existing chain link fence where determined and as directed by the City. The size, type and material of the chain link fence shall match with the existing or as directed by the City.

The materials removed shall be utilized in the fence for resetting except, where necessary, new fence, posts and foundation shall be furnished by the Contractor as paid under the respective items. The concrete foundation for the chain link fence post shall be paid under Item 904. 4000 psi, ¾ inch 610 Cement Concrete.

## **BASIS OF PAYMENT**

Work under these items shall be paid at the Contractor bid prices per Foot for Item 645.072 72 Inch Chain Link Fence (Pipe Top Rail) (Line Post Option), Item 665. Chain Link Fence Removed and Stacked, Item 666. Chain Link Fence Removed and Reset, and pre Each for Item 653.072 72 Inch Chain Link Fence Corner or Intermediate Brace Post respectively, which price shall include full compensation of all labor, materials, equipment, tools excavation, removing, stacking, supplying and backfilling with gravel and compaction,, relocating fence and post, of parking meters, removing and disposing for parking meter posts and foundations, furnishing and installing new post and foundation, disposal of the existing post, fence, and foundations as determined by the City, and any other incidentals necessary for the satisfactory completion of this work as specified.

Payment for concrete foundation shall be paid under Item 904. 4000 psi, ¾ inch 610 Cement Concrete. The cost for disposal of existing fence, post and foundation or stacking at the City DPW facility at the direction of the City shall be considered incidental to the cost of these items.

## **ITEM 701.2            CEMENT CONCRETE WHEELCHAIR RAMP            SQUARE YARD**

The work to be done under these items shall conform to the relevant provisions of Section 701 of the Standard Specifications, City of Newton Sidewalk and Curbing Ordinance latest revision and the following:

## **GENERAL**

The work to be done under this item shall conform to the relevant provisions of Section 701 of the Standard Specifications, latest Americans with Disabilities Act (ADA) regulations, and as directed by the City, with the information contained in Massachusetts Department of Transportation Wheelchair Ramp Standards, and the following:

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope or for dimension less than the minimum dimensions.

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints. The Contractor is responsible for ensuring that all wheelchair ramps are designed to conform to AAB/ADA and are approved by the City. All wheel chair ramps shall have detectable warning panels permanently embedded into the concrete at the bottom of the ramp.

Detectible warning panels shall be installed as shown on the Plans and as details in MassDOT Construction Standard Details E 107.6.5 dated December 2016. The tile shall conform to Americans with Disabilities Act (ADA) requirements and color shall be yellow. The contractor shall provide a sample of the panels to the City for approval.

All granite transition curb for the wheelchair ramp shall be threshold curb as the City of Newton Standard. **Prior to ordering, the Contractor shall obtain direction from the City regarding the type of granite transition curb and the construction method.**

#### **BASIS OF PAYMENT**

The work under this Item shall be paid for at the Contractor bid price per Square Yard for Item 701.2 Cement Concrete Wheelchair Ramp on the measure quantity actually installed and approved which payment shall be considered full compensation for all labor, materials, equipment, and form work needed to form grade and install cement concrete wheelchair ramp as specified herein. The cost of the detectable warning panel installed in wheelchair ramps shall be included in the square yard cost of the wheelchair ramp item.

**ITEM 751.**

**LOAM BORROW**

**CUBIC YARD**

**ITEM 765.**

**SEEDING**

**SQUARE YARD**

**ITEM 767.6**

**AGED PINE BARK MULCH**

**CUBIC YARD**

Work to be done under these items shall conform to the relevant provisions of the Standard Specifications for Highways and Bridges Sections 751, 765, 767 as directed by the City, and the following:

#### **GENERAL**

Loam shall be spread to the required depths at locations shown on the typical sections and as directed by the City. The Contractor shall take care to deposit the loam only in the areas directed and sweep up any additional material on the sidewalk or roadway. The loam shall be uniformly spread at the time of installation. Subsequently, these areas shall be fertilized and seeded per the Manufacturer's recommendations.

#### **BASIS OF PAYMENT**

Work under these Items shall be paid at the Contractor bid prices per Cubic Yard for Item 751. Loam Borrow, per Square Yard for Item 765 Seeding, and per Cubic Yard for Item 767.6 Aged Pine Bark Mulch respectively. Such payments shall include full compensation for all labor, materials, equipment, and other incidentals including fertilization, necessary for the satisfactory completion of this work as specified.

**ITEM 804.3**

**3 INCH ELECTRICAL CONDUIT**

**FOOT**

**TYPE NM – PLASTIC – (UL)**

The work under this item shall conform to the relevant provisions of Section 801 of the Standard Specifications and the following:

#### **GENERAL**

The work shall include furnishing and installing 3-inch, non-metallic plastic conduit, for traffic signals systems in accordance with the plans. The conduit material shall be Schedule 80 polyvinyl chloride (PVC) plastic conduit.

#### **Conduit under Sidewalk**

Where conduit is installed in sidewalk, the work shall include excavating and backfilling of trenches, including necessary compaction. The cost to saw-cut pavement and sidewalk, and to repair and/or replace damaged sidewalk and pavement surfaces shall be incidental to this item unless shown otherwise on the plans.



### Conduit Crossing Roadways (Areas of Overlay)

Trenches in existing asphalt pavements not subject to full depth reconstruction shall be saw-cut to an 18-inch width. The existing pavements shall be saw-cut through their full depth and the pavement removed. After conduit installation, the trench shall be backfilled with controlled density fill (CDF). CDF shall be Type 2E and shall be as specified in Section M4.08.0 of the Standard Specifications. CDF shall be flush with the bottom of the hot mix asphalt. The cost to saw-cut pavement, backfill with CDF and permanent asphalt patching shall be incidental to this item as shown on the plans.

#### **BASIS OF PAYMENT**

Work under these Items shall be paid at the Contractor bid price per Foot for Item Item 804.3, 3 Inch Electrical Conduit Type NM – Plastic - (UL) which price shall include all labor, materials, equipment, excavation, saw-cutting, backfill with CDF, concrete, asphalt, gravel, warning tape, sand bedding, or any other incidental materials required to install and temporarily restore and maintain conduit trenches, and to the satisfactory completion of this work as specified.

Payment will be made for the permanent restoration of all surfaces under the appropriate pay items.

<b><u>ITEM 813.81</u></b>	<b><u>SERVICE CONNECTION (UNDERGROUND)</u></b>	<b><u>LUMP SUM</u></b>
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The work under this item shall conform to the relevant provisions of Section 801 of the Standard Specifications and the following:

The work shall include the installation of 3 inch rigid metallic conduit and service conductors from the traffic controller cabinet to the Eversource manhole as shown on the plans. Coordination with Eversource is necessary when penetrating into the Eversource manhole. Contractor shall connect conductors at the service pedestal. Electric utility shall connect at the manhole.

*The Service Connection (Underground) for the Washington Street at Harvard Street intersection will be paid for under Item 813.81. Any alterations to the Service Connection for the Washington Street at Crafts Street intersection or new service connections for the intersection will be considered incidental to Item 816.01 and additional compensation will not be made.*

#### **BASIS OF PAYMENT**

Work under this Item shall be paid at the Contractor bid price per Lump Sum for Item 813.81 Service Connection (Underground) which price shall include all labor, materials, equipment's, conduit, wiring, utility company back charges, any other requirements set by Eversource, local codes and guidelines, and any other incidental materials required to satisfactory completion of this work as specified.

<b><u>ITEM 815.1</u></b>	<b><u>TRAFFIC CONTROL SIGNAL – LOCATION NO. 1</u></b>	<b><u>LUMP SUM</u></b>
<b><u>ITEM 816.01</u></b>	<b><u>TRAFFIC SIGNAL RECONSTRUCTION</u></b>	<b><u>LUMP SUM</u></b>
	<b><u>– LOCATION NO. 2</u></b>	

Work under these items shall conform to the relevant provisions of Section 800 and 900 of the Standard Specifications and the following:

The work consists of:

**Item 815.1**

Work consists of furnishing and installing new traffic control signals and traffic equipment at the Harvard Street at Washington Street intersection (Signal Location No. 1). The signals shall be fully actuated and *capable of future adaptive control* and coordination.

**Item 816.01 (Add Alternate)**

Work consists of replacing the existing controller and cabinet at the Washington Street at Crafts Street intersection (Reconstruction Location No. 1) to be fully actuated and *capable of future adaptive control*, installing a master controller, replacing the pedestrian push buttons to APS and installing wireless Ethernet radios. Work under this item also includes providing wireless Ethernet radios at the Washington Street at Harvard Street intersection (Signal Location No. 1), setting offset times between the two intersections and optimizing timing at both intersections to operate as a fully operational, optimized coordinated system.

Work includes furnishing all necessary labor, materials and equipment required to install, complete in place and ready for operation, a traffic signal system as described herein and as shown on the plans. The intersection traffic signals shall operate as a fully actuated traffic control system, capable of operating as a closed loop and in a coordinated system. All equipment and foundations shall be installed to ensure ADA compliance and clearances. The controller cabinet foundation shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. Anchor bolts shall be internal to the cabinet.

Individual items of work within these pay items includes but is not limited to furnishing and installing the following:

- Siemens Series m60 Controller(s) or approved equal – with the latest version of firmware at the time of installation, cabinet and foundation;
- a Siemens Series m50 Master Controller or approved equal (Add Alternate);
- wireless Ethernet radio communications (Add Alternate);
- signal support foundations with anchor bolts;
- video vehicle detectors and processors;
- pull boxes; traffic signal posts and housings;
- pedestrian signals with countdown timers and non-movable push buttons;
- a complete emergency vehicle priority control system and all necessary wiring, mounting assemblies, equipment grounding and bonding, ground rods, and
- a new service connection.

A list of major items required is included on the contract plans.

Within 30 days following execution of the contract, the Contractor shall submit a list of equipment and manufacturer's equipment specifications they proposed to install to the Engineer in accordance with the relevant provisions of Section 815.20.

The Contractor shall commence no work until approval of the shop drawings has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship required by the plans and these specifications to provide a working system as intended.



The Contractor shall deliver to the Engineer a certificate of compliance by manufacturer for all materials purchased. The Contractor shall, at the direction of the City, also provide concrete strength testing of mast arm foundations to verify compliance to industry standards using outside testing. Non-compliance will be cause for removal and replacement of the deficient foundation(s) by the Contractor for no additional compensation.

The lump sum prices bid for the traffic control signals shall be full compensation for all labor, materials and equipment necessary or incidental to the installation of the traffic control signal system.

Local intersection traffic signal cable shall be #14 AWG

The Contractor shall make all necessary arrangements with the electric utility company for the temporary service connections or for any main power cut off when necessary during construction. The permanent service connection will be paid under Item 813.81 Service Connection (Underground).

### **Traffic Control Equipment Removed and Stacked**

The removal and stacking of the existing equipment shall conform to the relevant provisions of Subsection 815.65 of the Standard Specifications and the following:

The Contractor shall remove as directed by the Engineer the existing traffic signal control equipment indicated on the plans (including the RRFB's, mast arms and push buttons) and transport and stack to location specified by the City.

Old cable and all unusable material, as determined by the City shall be disposed of by the Contractor. The work shall also include the excavation and backfilling with compacted gravel of the holes resulting from the excavation of the foundations and the replacement, in kind, of any surface material disturbed. The existing RRFB, mast arms, signs, and appurtenances shall be carefully removed and stacked. The cost for any damage done to this equipment due to carelessness on the part of the Contractor will be back charged to the Contractor. Two weeks prior to removal of the system, the Contractor shall notify and received approval from the City prior any work.

All traffic signal equipment shall remain the property of the City unless the Contractor is notified in writing by the Engineer to dispose of specific items in which case the Contractor shall dispose of the materials as part of this item without additional compensation. Disposal of existing equipment shall be as specified in the Standard Specifications, except as modified herein.

### **Signal Posts, Bases, and Foundations**

Signal post foundations shall be Mass DOT standard precast concrete foundations. Traffic signal posts shall be 8 and 10 foot steel poles with octagonal base. A two piece pole and base shall be used unless otherwise approved by the Engineer. Signal posts and bases shall be powder coated hunter green as approved by the City. Anchor bolts shall be a minimum of 18" with a 3" hook and a 3" threaded end. The anchor bolts, nuts and washer and closure screw for access door shall be stainless steel.

The Contractor shall be responsible for making all necessary arrangements to have the proper utility company(s) relocate overhead wires in order for the proper mast arm clearances to be obtained, should any conflicts arise. The Contractor shall take extra care and precaution in placing signal heads to ensure the existing overhead utility wires do not interfere with the visibility of the signal heads located above the roadway.

All measurements to determine the exact dimensions and clearances to existing overhead utility lines shall be made in the field by the Contractor for incorporation into the erection plans and shop drawings which are submitted for approval.

### **Mast Arm, Pole and Foundation**

Steel Mast Arms and Poles shall be provided in accordance with the Standard Specifications, the Mass DOT 2015 Standard Overhead Signal Structure & Foundation Mast Arm Details and as follows:

All mast arm poles shall be Mass DOT Standard galvanized steel type II mono-levers with standard shoe bases, unless otherwise directed. Acceptance of Type II mast arm poles shall be contingent upon review and approval of the shop drawings submitted by the Contractor.

The arm shall be attached at the standard height such that the bottom of the signal head shall provide a minimum clearance of not less than 16 feet or greater than 19 feet above the pavement grade at the center of the roadway. Mast arms shall be designed to accommodate the proposed traffic signal equipment as well as video monitoring equipment.

The mast arms, poles, fittings and/or clamps shall be made of galvanized steel powder coated hunter green and all items shall be from the Mass DOT approved list. All mast arms shall be galvanized steel, monolever with fixed mounting support, astro-brac or approved equal.

All measurements to determine the exact dimensions and clearances between mast arms and existing overhead utility lines shall be made in the field by the Contractor for incorporation into the erection plans and shop drawings which are submitted for approval. Only shoe type bases will be used for mast arms. No transformer type bases shall be used.

All welding to be performed shall be in accordance with the requirements of AWS D1.1 in a shop certified to the American Institute of Steel Construction (A.I.S.C.) Category 1. The shop performing the work shall also be an approved fabricator of steel traffic poles for the State of Massachusetts.

Mast Arms shall be provided in the size and length and mounting height as noted on the standard drawings.

Mast arms and all caps, fittings and accessories shall be powder coated hunter green in accordance with these specifications.

All design work shall bear the seal and signature of a Professional Structural Engineer registered in Massachusetts. Erection and shop drawings shall be submitted to the Design Engineer for approval. The Contractor shall provide longhand structural calculations stamped by a professional engineer registered in the Commonwealth of Massachusetts to verify that traffic signal poles shall meet Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals - 2004 as determined by AASHTO. Drawings and calculations detailing specifications as set forth above shall be submitted for approval purposes. Acceptance of mast arm poles will be contingent upon review and approval of shop drawings submitted by the Contractor. Work may commence upon approval of the shop drawings.

- Acceptance of mast arm poles will be contingent upon review and approval of shop drawings submitted by the Contractor. Longhand design calculations shall be submitted by the Contractor with the shop drawings for each mast arm pole.

- The Contractor shall provide a set of calculations, stamped by a Structural Engineer registered in the Commonwealth of Massachusetts, along with plans and specifications for review by the Engineer.
- The mast arm pole foundation shall be a cored pier foundation and constructed with heavy loading conditions in conformance with 2004 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals. In the event that soil conditions or ledge prevent the use of cored pier foundation type, the Contractor is responsible to select and design alternative foundation types. Alternative foundation types could include spread footings, coring and socketing into rock or other foundations previously used to support similar loads, within reason. Where applicable the Contractor shall install non-shrink grout, with provisions for weep hole(s), between the bottom on the mast arm pole base and the top of the foundation. The grout shall be flush with the pole base. The diameter of the weep hole(s) shall be in conformance with the requirements of the standard specifications.

No separate payment will be made for work considered incidental to the excavation, including but not limited to, mast arm foundations, dewatering, etc. but all costs in connection therewith shall be included in the contract lump sum bid price. Foundation shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is not impaired.

### **Foundations**

Signal support and controller cabinet foundations shall be constructed in conformance with Mass DOT Standard Drawings and Specifications and in accordance with the applicable requirements of Section 901.

The top forming of cast-in-place units shall extend downward for a minimum of 24" on the side of any foundation. The lower portions of all foundations shall be placed directly against undisturbed earth. No forms or reinforcing for foundations shall be set, nor shall concrete be placed until the excavation has been inspected by the Engineer and approval to proceed has been given. The Contractor shall request written approval from the Engineer in advance of the placement of any concrete for foundations of traffic signal poles, mast arms and controller cabinets.

Concrete foundations shall be constructed of 4000 psi, 565 Cement Concrete. The Contractor shall submit shop drawings of any bolt circle details for approval by the Engineer. Anchor bolts shall be set accurately and tops shall be formed neatly.

Where soil conditions are such that, in the opinion of the Engineer, the typical foundation design is not suitable, the Contractor shall submit a modified foundation design for approval by the Engineer.

### **Mast Arms and Foundations**

Mast arm foundations shall not obstruct a sidewalk so that passage by physically challenged persons is not impaired. Mast arms and poles shall be painted hunter green.

Mast arm poles and foundations shall be fabricated and constructed in conformance with the MHD Standard Drawings included in the plans.

All mast arm poles shall be galvanized steel monolevers with shoe bases, unless otherwise directed. Acceptance of Type II mast arm poles shall be contingent upon review and approval of the shop drawings submitted by the Contractor. Longhand design calculations shall be submitted for all Type II Mast Arms and Span Wire Assemblies.

The Contractor shall submit to The Engineer soil borings logs for the appropriate mast arm and strain pole foundation locations and The Engineer shall determine the soil type under separate boring pay items. The design of the foundation shall then be selected from the Foundation Design Chart for the appropriate soil type.

All Mast Arm Foundations, anchor bolts, and reinforcement shall be designed and constructed in accordance with the latest MassDOT Standard Overhead Signal Structures and Foundation Mast Arm Details. For purposes of this bid item, the following conditions are to be assumed during bidding:

Wind Zone – 110 mph  
Loading Type – Heavy Loads  
Soil Type - Wet Sandy

*The final foundation design shall be based on actual soil conditions and approved by the engineer; any additional depth or decrease in depth of the footing required shall be paid for or adjusted under Item 815.98 Footing Cost Adjustment per Foot.*

Where soil conditions are such that, in the opinion of the Engineer, the typical foundation design is not suitable, the Engineer shall provide modified design for the foundation.

Foundations for Signal Posts, Mast Arm Poles, Strain Poles and Controller Cabinets foundations shall be constructed using 30 MPa, 20 mm, 390 kg (4000 psi, ¾ inch, 610) Cement Concrete Masonry conforming to the relevant provisions of Section M4 of the Standard Specifications and the following:

1. Reinforcing steel shall be ASTM A-615, Grade 60.
2. The top forming of cast-in-place units shall extend downward for a minimum of 24” on the side of any foundation. The lower portions of all foundations shall be placed directly against undisturbed earth. No forms or reinforcing for foundations for mast arm poles, span wire poles and control cabinets shall be set nor shall concrete be placed until the excavation has been inspected by the Engineer and his approval to proceed has been given.

### **Service Connection**

It shall be the Contractor’s responsibility to contact the utility company. The electric company (refer to utility contacts) will furnish the connection and power at the locations shown on the Contract Drawings. The service connection shown on the plans is only approximate. The electric company will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of the electric company being present. The Contractor will be responsible for coordinating work with Eversource.

The utility will provide a stub conduit connection at the underground structure, furnish the wire and make the connection from the power source to the meter socket. The Contractor will install the conduit connecting the stub connection to the controller cabinet foundation.

The Contractor shall furnish and install, or cause to be installed, all service equipment to the satisfaction of the electric utility company. It shall also be the Contractor's responsibility to pay all charges to the utility company for performing the work previously described.

Openings where cables enter the bottom of the controller cabinet and each pullbox shall be sealed with approved elastic sealing compound.

No direct reimbursement will be made under this contract to the Contractor for payments made to electric company, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract prices bid.

Grounding Cable - Grounding cable shall be bare copper No. 8 AWG wires.

*The Service Connection (Underground) for the Washington Street at Harvard Street intersection will be paid for separately under Item 813.81. Any alterations to the Service Connection for the Washington Street at Crafts Street intersection or new service connections for the intersection will be considered incidental to Item 816.01 and additional compensation will not be made.*

### **Actuated Controller**

Actuated controllers shall be Siemens Series m60 Controllers or approved equal. The controller and all necessary traffic signal system components shall be capable of interconnection with the equipment at other nearby signalized (Siemens) intersections in this corridor and will be capable of future adaptive control.

The traffic signal controller installed shall conform to Section 815 of the MassDOT Standard Specifications for Highways and Bridges except as noted in these Special Provisions. The requirement for full eight-phase loading of load switches and flasher relays is retained.

The keyboard entry controller unit shall meet all applicable requirements of the NEMA standard publication TS-2, the Commonwealth of Massachusetts, 1988 standard specifications, the supplemental specifications dated November 8, 2000 and include the following as minimum requirements for the "Keyboard Entry Controller Unit".

The Traffic Controller Unit shall be Type 8 cabinet assembly with a Type 8 TS-2 Type 1 controller unit Siemens Series m60 controller with the latest version of firmware at the time of installation. All controller cabinet assemblies, including but not limited to controller units, back panels, flasher relays, terminal strips and the cabinet, provided under this contract shall be matched sets of the same manufacturer assembled as a system by the manufacturer. The color shall be hunter green.

Control unit shall be TS-2 controller and must be type tested and approved by the Commonwealth of Massachusetts and the City. The controller shall conform to Section 3, Controller Units of NEMA No. TS-2 traffic control assemblies. The controller unit shall utilize an input/output interface conforming to Section 3.3.1 of the NEMA TS-2 standard for all input/output functions with the back panel terminals and facilities, including the malfunction management unit, detector rack assemblies and auxiliary devices.

Controller unit shall retain intersection data and controller unit programming in non-volatile EEPROM memory. The real time clock shall be maintained by a battery backup during power outages and shall include automatic accommodations for daylight savings time.

Controller unit shall be capable of two through 16-phase operation and 16 keyboard- programmable overlaps and shall meet or exceed NEMA TS-2 Type 1 standards for fully actuated traffic controller units.



Controller unit shall be capable of operating with one to four concurrent timing rings on a user programmable ring structure.

Controller unit shall be capable of operating as a volume density controller and shall be capable of functioning in every respect as an integrated part of a closed loop traffic control system with internal communication capability and direct access to the data memory.

Controller unit shall have internal Time Base Coordination (TBC) logic. The coordination control shall have the capabilities to operate as described under the Section 815.411 of the Commonwealth of Massachusetts Standard Specifications.

Controller unit shall use a standard RS232 port provided in or with the local controller to allow for local printing of reports and for interconnecting to a remote master controller through the modem.

Controller unit shall have a security code function.

Controller unit shall have internal preemption with the capability of size unique preemption sequences. Each preempt sequence shall be fully user programmable for timing and signal display in response to an individual preempt command input.

Controller unit shall be provided with all necessary hardware, including cables and internal system modem to operate a closed loop system.

### **Closed Loop Master Controller**

Add Alternate Item 816.01 includes a Siemens Series m50 master controller or approved equal to be installed and operational at the Washington at Crafts intersection.

The closed loop system master shall consist of a digital microprocessor-based unit installed and housed in a traffic control cabinet at the Washington Street at Crafts Street intersection, as shown on the plans. The system master controller shall be capable of communicating with off-site monitoring. The system master controller shall be capable of communicating with the local traffic controllers.

The system master controller shall be capable of implementing traffic responsive control, time base control, time of day control or remote control of operation for its particular system of traffic controllers.

The system master controller unit shall conform to all applicable portions of the Environmental and Operating Standards as described in the NEMA TS 2 Standard, Section 2. All DC inputs and outputs shall conform to NEMA TS 2 Standard, Section 13.

The system master controller shall have the capability of uploading system and timing data from a remote monitoring and control computer and downloading the data to each local traffic controller unit.

Minimum available control parameters capabilities which can be transmitted between a remote computer and on-street master/local traffic controllers include the following:

All Standard Timing functions

All Time-base functions

All Preemption functions

All Master time of day (TOD) functions

System Communications Parameters

Local and Master Report functions including event/alarm and detector logging.

During either uploading or downloading operation, normal traffic control operations shall not be suspended. All data shall be continually accessible and displayed.

The system master controller shall provide the means for data transfer with local traffic controllers via Ethernet over the proposed fiber optic interconnect system by others.

The front panel display of both the system master controller and local traffic controller units shall be capable of containing a real-time display of communications status showing transmit/receive information and logging of errors in data transmission.

Liquid crystal displays shall be utilized. The display shall have a back light for viewing at night. Incandescent indicator lights are not acceptable. As a minimum, the model number and software version shall be displayed.

A menu driven format shall be utilized. The menu format shall preclude the need for programming cards or tables. All data shall be entered utilizing the keyboard supplied on the system master controller.

The system master controller shall have the capability of implementing TOD (time of day, day of week, week of year) control using an internal clock that utilizes the AC line frequency as a base.

Future cycle, split and offset selection shall be individually and independently controlled by the on-street master's TOD programming.

The cycle changes shall be user programmable as to synch referencing modes. The beginning of coordinated cycle shall start either at a programmable daily time reference or at the end of the current complete cycle. Synch referencing mode shall be user programmable.

The system master controller shall provide capabilities for a user specified security code entry before any data may be altered. In order to view any parameter, security code entry shall not be required. Security access shall be automatically rescinded in a set period of time after either access was gained or the last parameter change was entered when in use. The system master controller shall have the ability via keyboard to disable security code requirements, allowing for perpetual access. A specified security code will not be required for this project.

The closed loop system master supplied shall be of the same manufacturer as the local traffic controllers supplied under this Contract. The closed loop system master shall have all harnesses properly terminated on the back panel.

The master controller shall be capable of reporting, as a minimum, the following:

- System/free operation

- Master power on/off
- System detector failure
- Communication failure, master to local
- Coordination failures
- Master keyboard access
- System detector logging (volume, occupancy)
- System speed logging
- Local controller failure
- System coordination parameter changes

The local controller shall be capable of reporting, as a minimum, the following:

- Control cabinet door opened
- Conflict monitor fault detection
- Local detector failure
- Local controller keyboard access
- Pre-empt operation
- Local detector logging (volume, occupancy)
- Local speed logging

### **Controller Cabinet**

The TS 2 cabinet shall meet the requirements of Configuration 3 as defined in Table 5-2, "Type 1 Configurations" of the NEMA TS 2 Standard. The cabinet shall be fabricated of sheet aluminum to Size 6 dimensions as specified in Table 7-1, "Outline Dimensions", of the NEMA TS 2 Standards. The cabinet shall have a powder coated hunter green finish and shall include a police door, fan, and thermostat and police pushbutton assembly.

The cabinet shall also be wired with a normally closed switch connected to a user defined input to the controller for remote monitoring of the control cabinets' door open status.

The following requirements are applicable to each signalized location and are designed for effective use of a laptop computer in conjunction with traffic signal controllers. These requirements are also designed to permit all engineers, electricians and technicians (including those who are disabled but ambulatory) to work in the cabinet in a safe, effective and comfortable manner. To this extent, the following meets applicable ADA requirements.

1. Adjust the control cabinet height by use of a cabinet extender, adjust the placement of cabinet shelves, adjust the height of the cabinet foundation or provide any combination of these three items so that the top of the LCD or other visual display window of both the local controller and the master controller is no more than 48" above finished grade in front of the cabinet. The top of the cabinet door opening shall be at least 5'8" above finished grade. Any technical provision, plan detail, standard specification or standard drawing to the contrary shall not apply to the extent that it may conflict with this viewing height requirement.



2. Furnish and install one slide-out/slide-in shelf or swing-out/swing-in shelf appropriate for the size and load of a laptop computer. This moveable shelf shall support the bottom of the laptop computer at a height between 3'-4" and 3'-8" above finished grade in front of the cabinet.
3. Furnish and install a paved pad in front of the control cabinet. This pad shall be constructed of cement concrete, built in accordance with the sidewalk specification applicable to this project, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved. This pad shall abut the front of the cabinet, project at least 1' to each side of the cabinet and at least 3' in front. No pad is required if the front of the cabinet immediately abuts an existing or proposed paved sidewalk or other paved surface.
4. Both the firmware and software version in each control unit shall be the same throughout the project, and shall be the latest version available on the market. In addition, the contractor shall promptly furnish to the owner and install all upgraded versions of both firmware and software through the last day of the inspection period, guarantee period or warranty period, whichever date is later.
5. The contractor shall furnish one cable with each new timer unit to connect a controller timing mechanism to a laptop computer. This cable shall have a termination at one end to match the controller. It shall have a termination on the other end to match the type of serial port found on laptop computers, usually DB9. This cable shall be wired to provide serial RS232C communication between the controller and the computer.
6. Payment for the work described above shall be deemed to be incidental to and included in the prices bid for various items of traffic signal work, and no additional payment shall be made for the work described above.

### **TS2 Cabinet Power Supply**

A separate power supply shall be supplied and installed in the TS 2 cabinet. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, a line frequency reference for the bus interface units, load switches, and other auxiliary cabinet equipment, as required. As a minimum, the power supply shall meet all requirements of Section 5.3.5 of the NEMA TS 2 Standard.

The power supply shall be either shelf mounted or wall mounted utilizing key hole slots for ease of replacement or installed as part of the rack assembly. The unit shall contain four LED indicators on the front panel to indicate the four outputs; + 12 VDC +/- 1 VDC

@ 2.0 amps, + 24 VDC +/- 2 VDC @ 2.0 amps, 12 VAC @ 250 milliamps, and 60 Hz line frequency reference. A test point terminal shall also be located on the units front panel for + 24VDC and logic ground testing.

### **Battery Backup System**

The system shall monitor 120VAC input from the electric utility source and automatically switch to/from a system consisting of batteries and electronics mounted in a single enclosure mounted on the side of the proposed traffic signal controller cabinet. The typical traffic controller will be NEMA TS2 with LED field displays for vehicles and pedestrians. Traffic system components to be powered will also include video monitoring camera system and communication electronics.

Wiring of appropriate size shall be provided to/from the traffic controller. The battery backup system shall not be wired to street lighting circuits. An eight-hour battery backup system is required. A maintenance bypass switch shall be included to allow operation of the traffic signal system while repairs are made to the battery backup system. The battery backup system shall regulate the voltage provided to the traffic signal control cabinet. The battery backup system shall be the model S6 manufactured by Alpha Technologies and shall have the following specifications:

1. UPS with internal power transfer relay and Tap Switching Transformer.
2. Automatic / Manual Bypass Switch assembly external to the UPS.
3. Batteries to provide required backup time.
4. Cabinet to house UPS, Bypass Switch, and batteries.
5. Interconnect cables and Mounting hardware.

#### **UPS Functional Requirements**

- The UPS shall be sized for 1100VA / 1100 watts.
- The UPS output in backup mode shall be 120VAC  $\pm 2\%$ , sine wave,  $\leq 3\%$  THD, 60Hz  $\pm 0.3$  Hz.
- The inverter shall be 48VDC.
- The operating temperature shall be  $-40^{\circ}\text{C}$  to  $+74^{\circ}\text{C}$  with a maximum load of 70% of the rated output of the inverter.
- The UPS shall be tested and certified to Electrical Standards UL 1778 and CSA 107.3.
- The UPS shall have surge protection compliant with IEEE/ANSI C.62.41 Cat. A & B.
- The UPS shall have a Mean-Time-Before-Failure (MTBF) of 174,955 hours at  $25^{\circ}\text{C}$ .
- The UPS internal power transfer relay default to connecting the Line power to the load in the event of a UPS failure.
- The UPS shall shut the inverter off at 42.5VDC to prevent over-discharge damage to the batteries.
- The UPS shall have AVR (Automatic Voltage Regulation) to allow from input voltages of 88VAC to 175VAC.
- The UPS shall not have user definable transfer set points for Buck and Boost modes.
- The UPS output voltage shall be between 108VAC and 130VAC in AVR mode.

#### **UPS Mechanical Requirements**

- The UPS dimensions shall be 3.47" High x 17" Wide x 9" deep.
- The UPS shall have Input and Output terminal blocks rated for #10 AWG wire.
- The UPS shall have AC input and battery flush mount circuit breakers.

#### **UPS User Display**

- The UPS shall have a backlit LCD display and display real-time information.
- The UPS shall include a keypad for navigating system information.

#### **UPS Status LED's**

- The BBS shall have discrete status LED indications on the front of the inverter/charger.
- Green Output LED. This LED will be ON any time that the output of the UPS is in normal mode. When the UPS output is either in Backup Mode or AVR Modes the LED will flash On and Off.
- Red Fault / Alarm LED. This LED will be Solid On any time that there are any faults in the system or will Flash On and Off any time that there are any alarms in the system.

#### **Local and Remote Communications**

- The BBS shall be provided with a web-based-interface for user configuration and management through a web browser. The interface shall be RJ-45.

- The BBS shall provide a local interface to connect a laptop. The interface shall be RS-232.
- The BBS shall maintain an event log containing a minimum of 200 of the most recent events recorded by the BBS. These events shall be down loadable remotely via Ethernet and automatically reported to the central monitoring software. The Events Log shall be date and time stamped.

### **Programmable Relay Contacts**

- The BBS shall provide the user six (5) programmable dry relay contacts and one (1) 48VDC relay contact. As a minimum, the programmable options shall be On Battery, Low Battery, Timer, Alarm, Fault, and Off. The BBS shall also have three (3) input dry relay contacts. BBS Self Test, User Alarm, and BBS Shutdown.

### **Automatic & Manual Bypass Switch**

- The Automatic Bypass Transfer Switch shall be a combination automatic/manual bypass switch. Placing the bypass switch in the “Bypass” mode shall transfer the intersection load from the UPS output directly to commercial power. AC commercial power must still be available to the UPS input, allowing the UPS to keep the batteries charged. An Inverter Input breaker shall be provided and located on the Bypass Switch so to shut off commercial power to the UPS input, allowing safely disconnecting and removing the inverter. With the inverter turned off, the batteries can be safely disconnected from the system.

### **Automatic Generator Transfer Switch**

The BBS shall be equipped with an Automatic Generator Transfer Switch that automatically senses that a generator is connected and switches the load to the generator.

### **Batteries**

- The battery shall be extreme temperature, float type, Gel Cell VRLA (Valve Regulated Lead Acid).
- The individual batteries shall be 12VDC.
- The battery group size shall Case 31.
- The amp-hour rating shall be 100Ah or 109Ah at the 20 hour rate to 1.75 volts per cell.
- The batteries shall provide 100% runtime capacity out-of-the-box.
- The battery string voltage shall be 48VDC.
- The operating temperature of the batteries shall be -40°C to +71°C.
- The batteries shall have maintenance-free threaded insert terminals.
- The batteries shall have lifting handles.
- The BBS shall include an external battery balancer to automatically balance the battery Charger voltage on all batteries in the string to within +/- 100 mV between any two batteries. The Balancer shall allow for any single 12V battery within the battery string to be replaced without replacing all batteries in the string during the battery warranty period.

### **Cabinet**

- The dimensions for the BBS cabinet shall not exceed 50 inches in height, 22 inches in width and 17 inches in depth.
- The Inverter/Charger Unit shall be shelf or rack mounted on a standard EIA19” rack.
- The Automatic Transfer switch shall be mounted on EIA 19” Rail.
- All interconnect wiring shall be provided and shall be UL Style 1015 CSA TEW.
- All external cabinets shall be NEMA 3R rated. The enclosure shall be made of 0.125 (5052-H32) aluminum.

- The external cabinet shall be ventilated through the use of louvered vents, filter, and one thermostatically controlled fan. The filter shall be the re-usable type and matching the dimensions of the louver with both located on the bottom half of the door.
- A generator receptacle shall be installed on the outside of the cabinet to allow connection of a portable generator.
- The cabinet fan shall be DC operated for longer reliability.

Wiring diagrams and manuals shall be supplied for all equipment installed as part of the Battery Backup System. Documentation shall involve instructions for set up and troubleshooting of all components in the Battery Backup System.

The battery backup system shall be warranted by its supplier for two (2) years from the date of delivery.

### **Surge Suppression for Traffic Signal Equipment**

Wherever electronic traffic signal equipment is located (cabinets, cameras, etc.), each input & output should be surge protected except traffic signal outputs. Signal outputs from load switches do not need surge suppression since the load switches act as surge suppressors.

The surge protector must be electrically connected to the nearest grounded metal structure or nearest ground rod.

Surge protection for power service shall conform to the current NEMA TS-2 standard except surge capacity shall be 80 kA. The product complies when a lab report from an independent test laboratory stating the product passes the current NEMA TS-2(5.4.2.4) specification (with the additional surge capacity of 80 kA) is submitted with the shop drawings.

Surge protection for all video, loop, pedestrian button, and pre-emption connections should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The product complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.

Units should be unconditionally warranted for at least 10 years.

### **SDLS Serial Bus**

Per section TS-2 Section 3.3.1 a SDLC (Synchronous Data Link Control) to allow communications between the controller unit, MMU and BIUs shall be provided.

### **Malfunction Management Unit (MMU)**

The MMU shall be capable of providing enhanced memory and remote retrieval of data, by means of a direct connection to the controller and shall be set-up such that remote monitoring of the conflict monitor shall be possible.

The MMU shall comply with Section 4 of the NEMA TS 2 standard. It shall be capable of being operated as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian and 4 overlap) or a Type 12 with 12 channels (8 vehicle, 4 overlap). Each MMU shall be initially configured as a Type 16 unit.

The MMU in either the Type 16 or Type 12 configuration shall be capable of operating in a NEMA TS 2-Type 1 cabinet or a NEMA TS 1 cabinet without loss of functionality.

The MMU shall provide a front panel RJ45 Ethernet port.

### **Bus Interface Unit (BIU)**

The controller cabinet will be equipped with a Bus Interface Unit (BIU). The BIU shall comply with Section 8 of the NEMA TS 2 Standard.

BIU shall be fully interchangeable with any other manufacturer's unit and interchangeable in a NEMA TS 2 Type 1 cabinet assembly.

The BIU shall perform the interface function port 1 at the controller unit, the malfunction management unit, the loop detector rack assembly and the backpanel terminal and facilities.

At a minimum, two LED indicators shall be provided on the BIU front panel. One indicator shall serve a dual use as a power on indication and as a diagnostic indicator for proper operation of the device. The second indicator shall serve as a transmit indicator illuminating each time data is transmitted.

### **Standard Module Functions**

Controller shall be capable of functioning with both incoming and outgoing coordination.

The controller shall be equipped with a separate emergency flashing mechanism capable of providing flashing operation at the rate of 50 to 60 flashes per minute. This mechanism shall be so wired and so mounted within the cabinet that it will continue to cause the signals to flash even when the basic controller is removed from the cabinet.

The controller shall be capable of changing from stop-and-go operation to flashing operation in accordance with the Manual on Uniform Traffic Control Devices.

### **Load Switches**

Load switches shall be provided with LED indicators wired to the input and output of each circuit.

### **Controller Back panel and Terminal Facilities**

The Controller shall be supplied complete with all load switches and flash transfer relays and appurtenances required for operation as a complete eight-phase unit regardless of the number of phases placed in operation at the time of installation. The controller, malfunction management unit, bus interface units, video detection units, and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the latest revision of the National Electrical Manufacturers Association (NEMA) Standard No. TS 2.

## **Manual Override**

Provisions shall be made for manual override of the traffic controller. Manual override equipment shall include an automatic-manual switch and interval advance hand-push button switch, both located within the auxiliary police door.

Hand-push button switch shall have flexible cord of sufficient length to allow movement by the operator to observe the operation of the intersection from the controller cabinet.

## **Wiring and Service Connections**

All conduit runs shall be sealed with an approved sealing compound at all manholes, handholes, pull boxes, junction boxes, cabinets and foundations to form a complete duct system. Sealing foam materials shall not be accepted on this contract.

## **Fine Tuning, Adjustment and Testing Period**

*Should the City proceed with Add Alternate Item 816.01, it will be the Contractor's responsibility to optimize timings at the Washington at Crafts intersection, adjust the cycle length of the Washington at Harvard intersection accordingly and determine optimal offsets between the intersections as services incidental to Item 816.01.*

After the Contractor has finished installing the controllers and all other associated signal equipment and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. During this period, the Contractor under the direction of the Engineer will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall be not less than 30 days. No request for final acceptance will be considered until successful completion of the testing period.

The cost of electrical energy consumed by the operation of the traffic signal during the construction, fine-tuning and testing until final acceptance of the signal shall be borne by the Contractor.

## **As-built Plans**

As-built AutoCAD drawings will need to be supplied to the City before acceptance of the traffic signals. The as built plans shall encompass all proposed work shown on the project plans and in these specifications.

## **Guarantee After Final Acceptance**

The Contractor shall diagnose (trouble-shoot) the system and, at their own expense, replace any part of the traffic signal control equipment found to be defective in workmanship, material or manner of functioning within six months from the date of final acceptance of the installations under this Contract. This requirement does not affect the one-year warranty period on equipment specified in Subsection 815.20 of the Standard Specifications.

Upon the date of acceptance of the project by the City, the Contractor shall turn over all guarantees and warranties to the City.



## **Vehicle Detector**

A video detection system shall be furnished, installed, and configured to detect the presence of vehicles in the designated detection zones at the Washington at Harvard intersection. Video cameras, image processors, communications interface, and all ancillary equipment, software, and programming, and training will be furnished as a complete integrated system compatible with all supplied equipment at the intersection.

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic. The video detection system shall be manufactured by ITERIS and consist of either option:

Vantage Edge Camera, Vantage Edge 2 video processor.

## **System Hardware**

The video detection system shall consist of one or two video cameras, a video detection processor (VDP) which mounts in a standard detector rack; a detector rack mounted extension module (EM), and a pointing device.

### **System Software**

The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an on board video menu and a pointing device to place the zones on a video image. Up to 24 detection zones per camera shall be available. A separate computer shall not be required to program the detection zones.

One 9" color monitor shall be installed in each cabinet.

## **Functional Capabilities**

The VDP shall process video from one or two sources, as specified. The source can be a video camera or video tape player. The video shall be input to the VDP in RS170 format and shall be digitized and analyzed in real time. Dual video VDP's shall process images from both inputs simultaneously.

The VDP shall detect the presence of vehicles in up to 24 detection zones per camera. A detection zone shall be approximately the width and length of one car.

Detection zones shall be programmed via an on board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones and setting of zone parameters or to view system parameters. A separate computer shall not be required for programming detection zones or to view system operation.

The VDP shall store up to three different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.

The VDP shall detect vehicles in real time as they travel across each detector zone.

The VDP shall have an RS232 port for communications with an external computer. The VDP RS232 port shall be multi-drop compatible.

The VDP shall accept new detector patterns from an external computer through the RS-232 port when the external computer uses the correct communications protocol for downloading detector patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDP shall send its detection patterns to an external computer through the RS-232 port when requested when the external computer uses the appropriate communications protocol for uploading detector patterns.

The extension module (EM) shall be available to avoid the need of rewiring the detector rack, by enabling the user to plug an extension module into the appropriate slot in the detector rack. The extension module shall be connected to the VDP by an 8-wire cable with modular connectors. VDP and EM communications shall be accommodated by methods using differential signals to reject electrically coupled noise. The extension module shall be available in both 2 and 4 channel configurations. EM configurations shall be programmable from the VDP.

The camera system shall be able to transmit an NTSC video signal, with minimal signal degradation, up to 1000 feet under ideal conditions.

The associated VDP shall default to a safe condition, such as a constant call on each active detection channel, in the event of loss of video signal.

The system shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all defined detection zones in a constant call mode. A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

### **Vehicle Detection**

A minimum of 24 detection zones shall be supported and each detection zone shall be user definable in size and shape to suit the site and the desired vehicle detection region.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be AND'ed together to indicate vehicle presence on a single phase of traffic movement.

Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the VDP and displayed on a video monitor, to draw the detection zones on the video image from the video camera. No separate computer shall be required to program the detection zones.

A minimum of 3 detection zone patterns shall be saved within the VDP memory. The VDP's memory shall be non-volatile to prevent data loss during power outages. The VDP shall continue to operate (e.g. detect vehicles) using the existing zone configurations even when the operator is defining/modifying a zone pattern. The new zone configuration shall not go into effect until the configuration is saved by the operator.



The selection of the detection zone pattern for current use shall be done through a menu or remote computer via RS-232 port. It shall be possible to activate a detection zone pattern for a camera from VDP memory and have that detection zone pattern displayed within 1 second of activation.

When a vehicle is detected crossing a detection zone, the corners of the detection zone will flash on the video overlay display screen to confirm the detection of the vehicle.

Detection shall be at least 98% accurate in good weather conditions and at least 96% accurate under adverse weather conditions (rain, snow, or fog). Detection accuracy is dependent upon site geometry; camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

Detector placement shall not be more distant from the camera than a distance of ten times the mounting height of the camera.

The VDP shall provide up to 24 channels of vehicle presence detection per camera through a standard detector rack edge connector and one or more extension modules.

The VDP shall provide dynamic zone reconfiguration (DZR) to enable normal detector operation of existing channels except the one where a zone is being added or modified during the setup process. The VDP shall output a constant call on any detection channel corresponding to a zone being modified.

Detection zone setup shall not require site specific information such as latitude, longitude, date and time to be entered into the system.

The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

Up to six detection zones shall be capable to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the RS-232 port. The data collection interval shall be user definable in periods of 5, 15, 30 or 60 minutes.

### **VDP and EM Hardware**

The VDP and EM shall be specifically designed to mount in a standard TS-1, TS-2, 170 type detector rack, using the edge connector to obtain power and provide contact closure outputs. No adapters shall be required to mount the VDP or EM in a standard detector rack. Detector rack rewiring shall not be required or shall be minimized.

The VDP and EM shall operate in a temperature range from -34°C to +74°C and a humidity range from 0%RH to 95%RH, non-condensing.

The VDP and EM shall be powered by 12 or 24 VDC. These modules shall automatically compensate for the different input voltages.

VDP power consumption shall not exceed 300 milliamps at 24 VDC. The EM power consumption shall not exceed 120 milliamps at 24 VDC.

The VDP shall include an RS232 port for serial communications with a remote computer. The VDP RS232 port shall be multi-drop compatible. This port shall be a 9-pin "D" subminiature connector on the front of the VDP.

The VDP shall utilize flash memory technology to enable the loading of modified or enhanced software through the RS232 port without modifying the VDP hardware.

The VDP and EM shall include detector output pin out compatibility with industry standard detector racks.

The front of the VDP shall include detection indications, such as LED's, for each channel of detection that display detector outputs in real time when the system is operational.

The front of the VDP shall include one or two BNC video input connection suitable for RS170 video inputs as required. The video input shall include a switch selectable 75-ohm or high impedance termination to allow camera video to be routed to other devices, as well as input to the VDP for vehicle detection. Video must be inputted via a BNC connector on the front face of the processor. RCA type connectors/jacks for video input are not allowed. Video shall not be routed via the edge connectors of the processor.

The front of the VDP shall include one BNC video output providing real time video output that can be routed to other devices. A RCA type connector/jack for video output is not allowed.

The front panel of the VDP and EM shall have a detector test switch to allow the user to place calls on each channel. The test switch shall be able to place either a constant call or a momentary call depending on the position of the switch.

### **Video Detection Camera**

The video cameras used for traffic detection shall be furnished by the VDP supplier and shall be qualified by the supplier to ensure proper system operation.

The camera shall produce a useable video image of the bodies of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.1 lux to 10,000 lux.

The camera shall use a CCD sensing element and shall output monochrome video with resolution of not less than 380 lines horizontal.

The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with a factory adjusted manual iris. Auto-iris lenses are not allowed.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier. The horizontal field of view shall be adjustable from 8.1 to 45.9 degrees. A single camera configuration shall be used for all approaches in order to minimize the setup time and spares required by the user.

The camera electronics shall include AGC to produce a satisfactory image at night.

The camera shall be housed in a weather-tight sealed enclosure.

The housing shall be field rotatable to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 6" diameter, less than 15" long, and shall weigh less than 6 pounds when the camera and lens are mounted inside the enclosure.

The camera enclosure shall include a thermostatically controlled heater to assure proper operation of the lens shutter at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -34 °C to +60 °C and a humidity range from 0% RH to 100% RH.

The camera shall be powered by 120-240 VAC 50/60 Hz. Power consumption shall be 15 watts or less under all conditions.

Recommended camera placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The camera enclosure shall be equipped with separate, weather-tight connections for power and setup video cables at the rear of the enclosure. These connections may also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole. One pointing device and one 9" LCD monitor shall be required in each controller cabinet for video setup and viewing of the detection camera images. Video and power shall not be connected within the same connector.

The video signal output by the camera shall be black and white in RS170 or CCIR format.

The video signal shall be fully isolated from the camera enclosure and power cabling.

### **Installation**

The coaxial cable to be used between the camera and the VDP in the traffic cabinet shall be Belden 8281 or a 75 ohm, precision video cable with 20 gauge solid bare copper conductor (9.9 ohms/M), solid polyethylene insulating dielectric, 98% (min) tinned copper double-braided shield and black polyethylene outer covering. The signal attenuation shall not exceed 0.78 dB per 100 feet at 10 MHz. Nominal outside diameter is 0.304 inches. The coax cable shall be a continuous unbroken run from the camera to the VDP. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. 75-ohm BNC plug connectors should be used at both the camera and cabinet ends. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

The power cabling shall be 16 AWG three conductor cable. The cabling shall comply with the National Electric Code, as well as local electrical codes. Cameras may acquire power from the luminaire if necessary.

The video detection system shall be installed by supplier factory certified installers and as recommended by the supplier and documented in installation materials provided by the supplier. Proof of factory certification shall be provided.

### **Limited Warranty**

The supplier shall provide a limited two-year warranty on the video detection system. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to VDP software shall be available from the supplier without charge.

### **Maintenance and Support**

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via conditions, regardless of time of day.

A 9" color monitor and USB mouse shall be supplied in cabinets with video detection system.

### **Accessible Pedestrian Signals**

Accessible pedestrian signals shall be provided at the Washington at Harvard intersection (Item 815.1). At the Washington at Crafts intersection, existing pedestrian push buttons will be removed and replaced with APS push buttons should Add Alternate Item 816.01 be authorized.

The Audible-Tactile Pedestrian Signal (APS) System shall consist of all electronic control equipment, mounting hardware, push buttons and signs, which are designed to provide both a push button with a raised vibrating tactile arrow on the button, along with a variety of audible sounds for different pedestrian signal functions. The pushbuttons shall be painted Newton Green and have a 9" x 15" sign. The APS System shall be manufactured by Polara Inc.

### **General Description**

The System shall be backward compatible with the Polara Navigator 4-wire system. The System shall consist of a Control Board and Pedestrian Push Button Stations, as described below, and a hand held infrared device for programming the system settings. The System shall be manufactured by an ISO 9001:2008 registered company.

### **Design Compliance**

- The System shall meet the functionality requirements of MUTCD 2009 – 4E and CAMUTCD 2011 - 4E.
- The System shall meet NEMA TS 2 Section 2.1 Temperature & Humidity (salt-fog) requirements.

- The System shall meet NEMA TS 2 Section 2.1 Transient Voltage Protection requirements.
- The System shall meet NEMA TS 2 Section 2.1 Mechanical Shock and Vibration requirements.
- The System shall meet IEC 61000-4-4, IEC 61000-4-5 Transient Suppression requirements.
- The System shall meet FCC Title 47, Part 15, Class A Electronic Noise requirements.
- The Push Button Station (PBS) Enclosure shall meet NEMA 250 – Type 4X Enclosure requirements.
- The System shall meet NEMA TS 4 – Electrical Reliability requirements (applicable portions of Section 8).

### **Functional Requirements**

- The System shall be able to be set to vibrate a tactile arrow button during the WALK interval following a button push and/or every time the walk comes up.
- The System shall have the field-selectable function known as “Locating Tone”. This means that during the FLASHING DON’T WALK and the DON’T WALK intervals, the system shall provide a locating tone that emanates from the Pedestrian Push Button Station. The system shall provide at least three different sounds to choose from.
- The System shall have the field selectable function known as “Extended Push Activation”. Defined as audible WALK message shall only be activated and audible during the WALK interval if the pedestrian call button is depressed continually beyond a field selectable minimum period of time (from .5 second to 6 seconds). Also, for the following walk phase, the volumes will be increased to play at a settable minimum volume level.
- The System shall have the field selectable function known as “Informational Message”. This means that a custom message giving the location of the street to cross and the intersection (or other information) will be vocalized only when the button is depressed for a minimum field selectable time.
- The APS shall provide a “Wait” message that plays once the button is activated and repeats until the walk cycle initiates. This message must have the field selectable option of OFF or repeating every 4, 6, 8 or 10 second intervals.
- The System shall have standard “Travel Direction” options that can be selected at the time of installation with either a vendor supplied wireless hand-held Configurator device or Windows XP/7 PC-based Laptop software program.
- The System shall have at least five field selectable WALK sound options including a cuckoo, a chirp, a MUTCD rapid tick or user-defined custom voice message.
- The System shall provide 3 Ped-clearance sound choices including audible countdown (field selectable). The audible countdown shall represent the time remaining during the pedestrian clearance interval. Timing is automatically adjusted to CLEARANCE INTERVAL timing read from the traffic controller associated pedestrian phase output.
- LOCATE tone and “Walk”, “Pedestrian Clearance” audible features shall have independent assignable minimum and maximum volume limits.
- The system shall utilize an interval ambient sensing microphone located within the pedestrian pushbutton (PPB) station in a non-visible, environmentally protected housing.
- All sound levels shall adjust automatically via the internal PPB audible feedback microphone, in response to ambient noise measurements over a 60dB range with additional software-based volume control to adjust the sound level at ambient, 5dB or 10dB over ambient, to a maximum of 100dB.
- The system shall have an independent ambient adjustment setting for the locate tone that allows the locate tone volume to be set to play below the ambient noise level.
- The APS shall utilize high quality digital audio technology, utilizing a minimum 12-bit sample at a 16k Hz sample rate. The audio amplifier and must have total harmonic distortion (THD) of less than 3% at 75dB.



- The firmware and voice messages shall be upgradeable via a PC standard USB port at the PBS. There shall be no requirement for the IC chips or module hardware to be removed or exchanged in order to complete a firmware update.
- Use of field replaceable fuses is unacceptable. All fuses and overload protection circuits shall be solid state, and self-resetting in the event of overload.
- All field selectable options shall be set and adjusted using a vendor supplied infrared remote programmer or Laptop USB port, without use of potentiometer or hardware adjustments. All USB adjustments shall include a Windows XP/7/Vista PC-based program with password security.
- The system shall work with the vendor Windows XP/7/Vista PC-based program to allow time of day (TOD), week, month & holiday programming, with a minimum of 4 TOD alternate programs.
- The system shall have an event tracking log, accessible via the vendor's Windows XP/7/Vista PC-based program, to allow downloading of the time stamped event data.
- The system shall operate with the vendor's Windows XP/7/Vista PC-based software program to record and upload cumulative pedestrian count & call data.

### **Control Board**

- The CB is the power supply and control unit that provides power and data for the Push Button Stations.
- Shall be mounted in the pedestrian head and be powered from the 120 VAC, WALK/DON'T WALK pedestrian head lamp indications.
- POWER REQUIREMENTS: 120 VAC, 60Hz, (100 ma, typical).
- Separate power inputs for "WALK" and "DON'T WALK".
- Shall require only 4 wires / conductors to be routed from the control unit to its corresponding push button station to control and operate all functions.
- All voltages supplied to the push button station shall be 24 VAC RMS or less.
- All output voltages include self-resetting fuses.
- MAXIMUM DIMENSIONS: 6" L x 4" W x 1.3" H.
- MOUNTING: Must be mountable inside all types of pedestrian heads with the exception of older, neon/transformer type pedestrian heads.

Under automatic adjustment the volume of the locating tone and audible sounds automatically adjust in relation to ambient noise levels. The volume of the locating tone and audible sounds are to be field-adjusted prior testing and final acceptance.

### **Wiring Diagrams (Permanent Signal Control Installation)**

Five sets of wiring diagrams for each control cabinet and all accessories shall be furnished including one mylar reproducible copy and an electronic CADD file for each control cabinet when installed. All actual and potential terminal strip connections shall be shown. Accessory equipment includes flashers, switches, relays, detectors, etc.

All identification on the diagrams shall be as installed, and all field labeling shall be consistent with the diagrams. Furthermore, the format symbols, identifications, operating sequence, etc. common to all the intersection wiring diagrams shall be standardized and consistent with industry standards. Before acceptance of the job, the five copies of all operating and maintenance manuals and complete and accurate parts lists shall be supplied.

### **Material Specification For Led Signal Module**

Red, Yellow and Green LED Vehicle Signal Modules:

The following shall apply to the regular LED modules used for the 12" (300 mm) signal heads and flashing warning beacons:

Unless already approved by the City, the LED module shall conform to ITE Performance Specifications for Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement, dated June 27, 2005 and also be Energy Star compliant. Arrow LED modules shall comply with the latest ITE performance specifications and also be Energy Star compliant.

The LED module shall be approved by the City (Subsection 815.21) to be considered as meeting the requirements of this specification.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits a failure due to workmanship or material defects within the first 60 months of field operation.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits either a greater than 40 percent light output degradation or falls below the minimum intensity levels within the first 36 months of field operation.

The LED module warranty will be voided if the connecting leads on the module are cut. The original LED module leads shall be connected to the signal head terminal block as continuous wire without splices.

### **Emergency Vehicle Pre-emption**

All new controller units furnished under this contract shall be capable of providing transit vehicle priority in addition to emergency vehicle preemption. Full priority logic will be integrated with coordination so that transit priority will not disrupt coordination. The controller units will have the capability of interfacing with and accepting input from the optical emergency preemption systems at each location.

When optical energy impulses are received at the intersection, control of the signals shall transfer to the controller's internal pre-emption logic which shall cause the signal controller to show a selected display identical to one of the color interval displays normally available as specified, which will indicate a red signal to all conflicting movements to grant the emergency vehicle exclusive right of way through the intersection without cross street conflict. After the vehicle has passed through the intersection, control of the signals shall then return to normal operation which shall restore the appropriate timings that were in effect prior to pre-emption.

The following description of work specifies the responsibilities involved in the installation of optical emergency vehicle pre-emption.

The Contractor is required to supply material and labor required or shown for the complete installation of optical pre-emption equipment at this project. Intersection pre-emption equipment required includes optical detectors, cable, interfacing equipment to the controller, making electrical connections and all required incidentals.

The following are the operational requirements of the optical emergency vehicle pre-emption system:

Emergency Vehicle Design Speed for pre-emption controlled approaches shall be 30 mph.

Operating sequence as specified shall be initiated when the optical detector receives optical energy of the required repetition rate from an emitter.

Detector shall transform the optical energy signals into electrical signals and transmit the electrical signals to the controller for processing.

Controller shall not respond to optical energy signals from another authorized vehicle. The optical detector cable shall meet the specifications of the system manufacturer. The Contractor shall bear responsibility for performing the following field supervision and turn-on services:

The Contractor shall select the proper quantity and place and method of installing all components to comply with the operational requirements shown in the pre-emption schedule included in these special provisions.

The Manufacturer shall instruct the Contractor and owner personnel in the procedures of installation.

The Contractor shall be available to assist, supervise and check all wiring to insure proper operation.

The Contractor shall perform a final check out to include initial adjustment of range and timing to acceptable standards.

The Contractor shall initiate documentation for as-built drawings.

The Contractor shall demonstrate the system and instruct the drivers of emergency vehicles and other authorities in the operation of the system.

The representative shall instruct maintenance personnel in routine maintenance and minor troubleshooting of the system.

Any operation problems occurring within the first 30 days of acceptance by the City of Newton shall be corrected by the Contractor or by a Field Service representative if the Contractor cannot do so. This shall be incidental to the job.

The cost of these field supervision and turn-on services shall be included in the Lump Sum Bid Price, and no additional payment shall be made therefore.

Pre-emption System Design and Documentation shall include the following: Provide the installing agency with location for detector installation. Provide the controller manufacturer, engineer and owner with electrical diagrams.

The installer shall install the equipment consistent with the pre-emption equipment, the manufacturer's recommended installation procedures and electrical diagrams in a neat and workmanlike manner.

The pre-emption equipment manufacturer shall be responsible for operational checkouts of the specified pre-emption functions prior to final acceptance and approval by the Engineer.

Operating checkouts include the following:

Verify that priority system timing and range are properly set. Pre-emption equipment warranties are put into effect.



## **Signal Housings**

Vehicular Signal Heads - All indications shall be equipped with tunnel visors.

Vehicular Signal Heads - Mounting hardware for side-of-shaft mounting shall be heavy-duty blind shaft clamps with couplings. The final adjustment of the facing of signals shall be made as directed by the Engineer after all the signals are operating, but prior to installing the throughbolt above.

## **Back plates**

Back plates shall be aluminum with a non-louvered profile. Back plates shall be 5 inch with a dull black color. Prior to ordering, the Contractor shall obtain direction from the City regarding back plates with or without a 3 inch +/- yellow retroreflective border. Only back plates that are listed in the latest MassDOT Approved Equipment List will be used.

## **Pedestrian Signal Heads and Indications**

This specification refers to definitions and practices described in “Pedestrian Traffic Control Signal Indications” published in the Equipment and Materials Standards of the Institute of Transportation Engineers, referred to in this document as “PTCSI.”

Module Installation: Installation of a module into existing signal housing shall not require the use of special tools. The module shall connect directly to existing electrical wiring system.

Minimum Message Bearing Surface Size: The minimum size of the message bearing surface of a module shall be 12 in x 12 in.

## **LED Signal Module**

Module Installation: A module shall be capable of replacing the existing optical components or signal module in a signal housing, or shall provide a complete replacement of the signal head.

Hard Coat (Optional): The module lens may be hard coated or otherwise made to comply with the UV material exposure and weathering effects requirements of the Society of Automotive Engineers (SAE) J576.

Unlit Illumination: When not energized, the WALKING PERSON (symbolizing WALK) and UPRaised HAND (symbolizing DONT WALK) symbols shall not be readily visible to pedestrians at the far end of the crosswalk that the pedestrian signal head indications control.

Replaceable Lens: The module lens may be a replaceable part, without the need to replace the complete LED signal module.

Countdown Display (For Modules with Countdown): The countdown pedestrian signal module shall be made up of two digits and shall be located next to the associated upraised hand symbol.

Pedestrian Change Interval: The countdown pedestrian signal shall display the time remaining, in seconds, beginning at the start of the pedestrian change interval and ending at the termination of the pedestrian change interval. Countdown displays shall not be used during the walk interval.

After the countdown displays zero, the display shall remain dark until the beginning of the next pedestrian change interval.

**Countdown Range:** The countdown display shall be capable of counting down from 99 to 0. Leading zeros on numbers less than 10 shall be blanked (i.e. Displaying 09, 08, 07 ... 01, 00 is unacceptable). Numbers less than 10 shall be displayed in the right hand digit of the countdown display.

**Display of the “1” Digit:** The display of the digit “1” must be displayed in the right hand portion of the digit segment.

**Learning Cycle:** The countdown learning cycle may only be initiated after the initial installation; a return from a power failure greater than 2 seconds; a repeated demand to change programming; or after preemption. During the learning cycle, the countdown display shall remain blank. The learning cycle shall not last more than two complete cycles.

**Countdown Timer:** During the pedestrian change interval, the display of each number in the countdown sequence; the interval from the display of one number to the display of the subsequent number in the sequence; and the display of the “0” at the end of the countdown cycle (before going blank) shall be 1 second  $\pm$  0.04 seconds. At no point in time during the countdown interval shall the digit display go entirely blank.

**Preemption:** If the pedestrian change interval is interrupted or shortened as a part of a transition into a preemption sequence (Re: Section 4E.10 MUTCD 2003), the countdown pedestrian signal display should be discontinued and go dark upon activation of the preemption transition.

The stored countdown timing value that represents duration of the Pedestrian Change Interval shall be determined by measuring the time in seconds between the end of the WALK indication and the start of the solid DONT WALK indication.

**Symbol Configurations:** The configurations of the walking person icon, the upraised hand icon and numeric digits shall be as illustrated on the Plans.

**Environmental Resistance:** All exposed components of a module shall be suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with function or appearance. As a minimum, selected materials shall be rated for service for a period of a minimum of 60 months in a south-facing Arizona Desert installation.

**Operating Temperature Range:** A module shall be rated for use throughout an ambient operating temperature range, measured at the exposed rear of the module, of -40°C (-40°F) to +74°C (+165°F).

**Moisture Intrusion:** A module shall be protected against dust and moisture intrusion, including rain and blowing rain.

**UV Resistance:** The module lens shall not crack, craze, or yellow due to solar UV irradiation typical for a south-facing Arizona Desert installation after a minimum of 60 months in service.

## **Construction**

**Configuration:** A module shall be a self-contained device, not requiring on-site assembly for installation into existing signal housing.

The power supply for the module may be either integral or packaged as a separate component.

Shock and Vibration Resistance: Assembly and manufacturing processes for the module shall be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration due to high winds and other sources.

## **Materials**

Materials: Materials used for the lens and module construction shall conform to ASTM specifications for the materials where applicable.

Flammability Resistance: Enclosures containing either the power supply or electronic components of the module shall be made of UL94V0 flame retardant materials. The module lens is excluded from this requirement.

## **Module Identification**

Identification Label: Each module shall be identified on the backside with the manufacturer's name, model, operating characteristics and serial number. The operating characteristics of each symbol shall be identified and shall include the nominal operating voltage and stabilized power consumption as defined in Section 6.3.5 in watts and volt-amperes. The operating characteristics of the countdown shall be for the countdown displaying the "88" digits. The identification labels shall be permanent in nature and must last and be legible through the operating life of the module(s) through its normal operating conditions and environment.

PTCSI Conformance Label: Modules conforming to all non-optional requirements of this specification, may have the following statement on an attached label: "Manufactured in Conformance with the ITE Pedestrian Traffic Control Signal Indicators - Light Emitting Diode (LED) Signal Modules Date of Latest Publication".

## **High Speed Internet Service (HSIS)**

### **Equipment**

The contractor shall supply a High Speed Internet Service (HSIS) that shall be utilized for remote communications to the on street system. The contractor shall order and oversee installation of HSIS as directed by the engineer. All cabling, power supplies and equipment shall be supplied by the contractor to provide for a complete HSIS.

The HSIS shall meet the following requirements:

- Shall be configured with one (1) static IP address
- Shall have a download speed of 30 Mbps or faster
- Shall have an upload speed of 15 Mbps or faster
- Shall not have a data capacity
- Shall not use cellular networks

### **Installation**

HSIS shall be installed as shown on the plans or as directed by the engineer. All cabling and equipment shall be installed in a neat and orderly fashion within the control cabinet

### **Testing**

The contractor shall test the HSIS and provide to the engineer documentation showing that download and upload speed have been met per the requirements.

### **VPN ROUTER**

This specification sets forth the minimum requirements for a VPN Router that provides VPN connection to a remote site as shown on the plans.

### **System Hardware**

The VPN Router shall be a Sonicwall TZ-400. The VPN router shall be installed in the cabinet as shown on the plans and or as directed by the Engineer. The Contractor shall supply all necessary documentation, wiring and equipment to make for a fully functioning VPN system. The Contractor shall work with the agencies IT department to develop an IP address scheme to be used in the creation of the VPN network.

- The VPN Router shall have seven or more 10/100/1000 auto-sensing Ethernet ports.
- The VPN Router shall have a firewall inspection throughput of 1300 Mbps.
- The VPN Router shall have 1 GB of memory (RAM) or greater.
- The VPN Router shall have four 800 Mhz Security processors.
- The VPN Router shall support twenty or more site to site VPN tunnels.
- The VPN Router shall support two or more IPSec VPN client.
- The VPN router shall support the following encryption modes:
  - DES
  - 3DES
  - AES-128
  - AES-192
  - AES-256
  - MD5
  - SHA-1
- The VPN Router shall support both RIP and OSPF routing.

### **Installation**

Locate VPN Router as indicated on the approved detail drawings and install module in compliance with the Sonicwall installation and operations manual.

### **Limited Warranty**

The supplier shall provide a limited one-year warranty on the VPN Router. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

### **Maintenance and Support**

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the VPN Router.

These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the VPN Router. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on-site technical support services.

Installation or training support shall be provided by a factory authorized representative.

## **WIRELESS ETHERNET RADIO SYSTEM**

This specification sets forth the minimum requirements for a Wireless Ethernet Radio System that provides Ethernet connection between two sites as shown on the plans.

### **System Hardware**

The wireless Ethernet system shall be a Comnet NWK1. The module shall support IEEE 802.3 protocol using the 802.11a/n standard. The module shall feature 1(one) 10/100TX RJ-45 port that supports 802.3af PoE as a Powered Device, and a second 10/100TX RJ-45 port. The module shall support two antennas utilizing MIMO technology and a maximum throughput of 95Mbps. The paired link shall be pre-configured by the manufacturer through MAC-locking the Client and Access Point modules. The wireless link shall be able to transmit an Ethernet signal 2 miles. The modules shall be encased in an IP67 dust and water immersion housing. The module shall provide power, link, and signal strength status indicating LED's for monitoring proper system operation. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

- The system shall provide point to point wireless connectivity.
- The system shall operate in the license-free 5GHz band.
- All modules shall support two, 10/100Mbps RJ45 ports.
- All modules shall support passive PoE and IEEE802.3af PoE PD.
- The system shall provide either auto-selectable or user static selectable frequency modes of operation.
- The system shall provide up to 26dBm power output.
- The system shall have selectable channel bandwidth capacity – 10, 20 or 40MHz.
- The system shall be pre-configured in the factory by locking the MAC addresses of the Client to the AP.
- The system shall use 2x2 MIMO technology.
- The system shall provide a throughput rate of up to 95Mbps.
- The system shall provide antenna alignment, signal strength, and site survey tools.
- The system shall use WPA2 – either AES or TKIP encryption.
- The system shall have an operating temperature of -40°C to +75°C.
- The system radiated emission shall be compliant with FCC Part 15.
- The system shall be supplied in an IP67 compliant housing.
- All modules and system parameters shall be configurable via a Graphical User Interface (GUI).
- The following IEEE Networking Standards shall be supported:
  - IEEE 802.3 10Base-T Ethernet
  - IEEE 802.3u 100Base-TX Fast Ethernet
  - IEEE 802.3af Power over Ethernet
  - IEEE802.1X Port-based Network Access Control
  - NTP Client

- 1.20 Wireless Radio Performance:
- EIRP +45dBm
- RF Output +26dBm Rated Transmitter
- Operational Frequency 5150-5250MHz - 5745-5825MHz
- Bandwidths 10, 20, 40MHz

### **Installation**

Locate wireless modules as indicated on the approved detail drawings and install module in compliance with the Comnet installation and operations manual.

### **Limited Warranty**

The supplier shall provide a limited one-year warranty on the Wireless Ethernet System. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

### **Maintenance and Support**

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the Wireless Ethernet system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the Wireless Ethernet system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on-site technical support services.

Installation or training support shall be provided by a factory authorized representative.

### **ETHERNET MANAGED SWITCH (EMS)**

This specification sets forth the minimum requirements for an Ethernet Managed Switch (EMS) that provides connection to all Ethernet equipment as shown on the plans.

### **System Hardware**

The Ethernet managed switch system shall be a Comnet CNGE3FE7MS2. The module shall support transmission utilizing Category 5 cable or better, multimode, or single-mode fiber. The module shall support the Ethernet data IEEE 802.3 protocol using Auto-negotiating and Auto-MDI/MDI-X features. The module shall feature seven 10/100TX RJ-45 ports, three 10/100/1000TX RJ-45 ports, and three Gigabit SFP ports. Use of an SFP port disables the corresponding 10/100/1000TX RJ-45 port. Similarly, use of a 10/100/1000TX RJ-45 port disables the corresponding SFP port. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall provide power, link speed, and fiber port status indicating LED's for monitoring proper system operation. The modules shall provide automatic re-settable solid-state current limiters on each module to reduce the chance of a single point failure of the system. The module shall have redundant power supply connections to minimize single point failure. The module shall provide a serial connection for local management of the device. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

The EMS shall be installed in the cabinet as shown on the plans and or as directed by the Engineer.



The EMS shall support the following IEEE Networking Standards shall be supported:

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX Fast Ethernet
- IEEE 802.3ab 1000Base-TX
- IEEE 802.3z Gigabit Ethernet Fiber
- IEEE 802.3x Flow Control and Back-pressure
- IEEE 802.1p class of service
- IEEE 802.1Q VLAN and GVRP
- IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
- IEEE802.3ad LACP
- IEEE802.1X Port based Network Access Control

The EMS shall have the following switch performance:

- Switch Technology: Store and Forward Technology with 32Gbps Switch Fabric.
- System Throughput: 14,880pps for 10M Ethernet; 148,800pps for 100M Fast Ethernet; 1,488,100 for Gigabit Ethernet
- Transfer Packet Size: 64 bytes to 1522 bytes (with VLAN Tag)
- MAC Address: 8K MAC
- Packet Buffer: 1Mbits
- Relay Alarm: Dry Relay output with 1A@24V ability

### **Installation**

Locate EMS as indicated on the approved detail drawings and install module in compliance with the Comnet installation and operations manual.

### **Limited Warranty**

The supplier shall provide a limited one-year warranty on the EMS. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

### **Maintenance and Support**

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the EMS. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the EMS. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on-site technical support services.

Installation or training support shall be provided by a factory authorized representative.

## **Maintenance of Existing Traffic Signal System**

Included under this item is the maintenance of the existing signal system. Existing signal systems including vehicle and pedestrian detection are to remain operational during the entire construction period until the proposed system is activated. Such work shall include, if necessary, temporary erection and wiring of relocated controller cabinets, signal posts, traffic signal housings and all other work required to maintain the existing signal systems.

The Contractor shall pay for the use of police details necessary to control traffic at this location due to failure of the existing system caused by operations of the Contractor. The Contractor shall schedule his/her work to prevent/reduce unreasonable and unnecessary traffic congestion by installing and have ready for operation new traffic signal equipment before removing existing traffic signal equipment. The Contractor shall not leave any vehicle phase without detection for a period longer than two (2) weeks or any pedestrian phase without detection at any time.

It shall be the responsibility of the Contractor to provide all labor, equipment and material required for the maintenance or full repair of all temporary and proposed traffic control equipment within the project limits, including damage by automobile accident, from the date of written notice given to the Engineer that the Contractor will work on or near an existing signal, until the date when the City Engineer shall recommend acceptance of the completed project. This written notice must be given before the Contractor may proceed with any traffic signal system work.

For the purpose of these paragraphs, the phrase "Traffic Signal Control Equipment" is intended to include, but is not limited to: controllers, detectors, signal housings, supporting structures, cabinets, wires, conduit and all other ancillary electrical equipment used for traffic control.

## **Compensation**

The Contract lump sum price bid for these items shall be full compensation for all labor, materials and equipment necessary or incidental to the installation of the complete signal system and all related items to function in the manner herein specified and as shown on the Contract documents:

### **Item 815.1**

Work consists of furnishing and installing new traffic control signals and traffic equipment at the Harvard Street at Washington Street intersection (Signal Location No. 1). The signals shall be fully actuated and capable of future adaptive control and coordination.

### **Item 816.01 (Add Alternate)**

Work consists of replacing the existing controller and cabinet at the Washington Street at Crafts Street intersection (Reconstruction Location No. 1) to be fully actuated and capable of future adaptive control, installing a master controller, replacing the pedestrian push buttons to APS and installing spread spectrum radios. Work under this item also includes providing spread spectrum radios at the Washington Street at Harvard Street intersection (Signal Location No. 1), setting offset times between the two intersections and optimizing timing at both intersections to operate as a fully operational, optimized coordinated system.

The cost of maintenance of the proposed traffic signal equipment until final acceptance shall be deemed to be included and no additional payments shall be made.

The Service Connection (Underground) for the Washington Street at Harvard Street intersection will be paid for separately under Item 813.81. Any alterations to the Service Connection for the Washington Street at Crafts Street intersection or new service connections for the intersection will be considered incidental to Item 816.01 and additional compensation will not be made.



All tests and any necessary repairs and replacements required to produce a fault-free traffic control system shall be included in the lump sum bid price for this item.

**BASIS OF PAYMENT**

Work under these items shall be paid at the Contractor bid prices for Item 815.1 and 816.01 per lump sum, which price shall include all labor, materials, equipment and all incidental costs required to complete the work.

No separate payment will be made for remove and stacking of existing traffic signal equipment, but all costs in connection therewith shall be included in the Contract unit price bid.

<b><u>ITEM 847.1</u></b>	<b><u>SIGN SUP (N/GUIDE) +RTE MKR</u></b>	<b><u>EACH</u></b>
	<b><u>W/1 BRKWAY POST ASSEMBLY - STEEL</u></b>	

**GENERAL**

Work to be done under this item shall conform to the relevant provisions Section 828 "Traffic Signs" as directed by the DPW Commissioner, and the following:

**MATERIALS**

Supports for signs shall be 2lb per foot hot dipped galvanized C-channel type. The posts shall include a base section cast into the sidewalk or driven into grade and an upper section attached to the base section with 2 galvanized bolts.

**CONSTRUCTION METHODS**

The contractor shall replace the existing sign posts as directed, with new c-channel posts. The new posts shall be set in the same location as it was prior to construction and the existing sign shall be reset or as directed the sign shall be replaced with a new sign and the old sign discarded.

**BASIS OF PAYMENT**

The work under this item shall be paid for at the contract unit price per Each for Item 847.1 Sign Sup (N/Guide) + Rte Mkr W/1 Brkway Post Assembly – Steel. Such payment shall be considered full compensation for all labor, equipment and materials needed to install sign supports as specified. The cost of removing and resetting the existing sign on the new post is considered incidental to this item. The cost of new signs to be installed as directed shall be paid for at the contract unit price for Item 832 Warning Regulatory and Route Marker Alum. Panel Type A per Square Foot.

<b><u>ITEM 866.104</u></b>	<b><u>4 INCH REFLECTORIZED WHITE LINE</u></b>	<b><u>FOOT</u></b>
	<b><u>(THERMOPLASTIC)</u></b>	
<b><u>ITEM 866.112</u></b>	<b><u>12 INCH REFLECTORIZED WHITE LINE</u></b>	<b><u>FOOT</u></b>
	<b><u>(THERMOPLASTIC)</u></b>	
<b><u>ITEM 867.104</u></b>	<b><u>4 INCH REFLECTORIZED YELLOW LINE</u></b>	<b><u>FOOT</u></b>
	<b><u>(THERMOPLASTIC)</u></b>	

Work to be done under these items shall conform to the relevant provisions of the 1988 Massachusetts Department of Transportation Standard Specifications for Highways and Bridges Section 860 and the following:

**GENERAL**

All striping shall be laid out in accordance with the Manual on Traffic Control Devices and as directed by the City

Before applying any striping the Contractor shall layout the proposed striping locations with temporary lines to assure proper alignment, which will be subject to approval of the City prior to the commencement of the work.

#### **BASIS OF PAYMENT**

Work under these Items shall be paid at the respective Contractor bid prices per Foot for, Item 866.104 4 Inch Reflectorized White Line (Thermoplastic), Item 866.112 12 Inch Reflectorized White Line (Thermoplastic), and Item 867.104 4 Inch Reflectorized Yellow Line (Thermoplastic) respectively for the actual pavement marking installed. Such payment shall be considered full compensation for all labor, materials, equipment, and other incidentals necessary for the satisfactory completion of this work as specified.

#### **ITEM 874.**

#### **STREET NAME SIGN**

#### **EACH**

Work to be done under this item shall conform to the relevant provisions Section 828 "Traffic Signs" as directed by the City, and the following:

#### **GENERAL**

The work under this item consider of removing, disposal and replacing existing street name sign as directed by the City which shall include all materials, labor and equipment necessary to complete the design, construction, and erection of the signs. Work shall also include, without additional compensation, all hardware, brackets, bolts, labor, etc., required to attach panels.

#### **MATERIALS**

Street sign sizes, background color, border and legend size and color, shall be as noted on the plans, and as noted in the **2009 Manual of Uniform Traffic Control Devices and with the latest revision and Massachusetts Amendment**. Legend shall be FHWA Series D 2000. Street name legends shall consist of 6 inch uppercase letters with 4.5 inch lowercase letters. The City Seal shall be provided on all street name signs and signs shall be double sided. Signs shall be fabricated consistent with a Type A aluminum sign material with reflectorized background sheeting. All mounting hardware shall be consistent with the Standard Specifications.

#### **BASIS OF PAYMENT**

The work under this item shall be paid for at the contract unit price per Each for Item 874 Street Name Sign. Such the payment shall be considered full compensation for all tools, equipment, labor and materials including mounting hardware and top bracket. Payment for street sign supports shall be paid for at the contract unit price for Item 847.1 Sign Sup (N/Guide) + Rte Mkr W/1 Brkway Post Assembly – Steel per Each.

#### **ITEM 874.2**

#### **TRAFFIC SIGN REMOVED AND RESET**

#### **EACH**

The work under this Item shall conform to the relevant provisions of Section 828 of the Standard Specifications and the following:

#### **GENERAL**

Work to be done under this item shall include the dismantling, removal, transporting and resetting of the existing signs at the location indicated on the plans. The work also includes removal and disposal of the existing sign supports and foundations.

The Contractor shall exercise particular care in the dismantling, removal, transporting and resetting of the existing signs designated to be reused. Any sign panel damaged by the Contractor shall be replaced at the Contractor's expense.

Signs, attachment hardware and sign support posts lost, damaged or otherwise made unsuitable for reuse while being removed, transported, stored or reset shall be replaced with new material at no additional cost to the Owner. New attachment hardware shall be furnished and installed as necessary to replace any missing or unusable existing hardware.

The existing signs shall not be removed and reset without permission from the City.

The Contractor shall backfill with compacted gravel all holes resulting from the removal of the existing signs and their foundations and restores the area to match existing conditions of adjacent areas. The existing signs shall not be removed and reset without the permission of the Engineer.

#### **BASIS OF PAYMENT**

The work under this item shall be paid for at the contract unit price per Each for Item 874.2 Traffic Sign Removed and Reset which price shall include dismantling, loading, transporting and resetting of the signs as designated above, the excavation, removal and disposal of their supports and foundations, the gravel backfill, all labor, materials, equipment, and all incidental costs required to complete the work.

New posts, if required, will be paid for under Item 847.1.

<b><u>ITEM 874.4</u></b>	<b><u>TRAFFIC SIGNS REMOVED AND STACKED</u></b>	<b><u>EACH</u></b>
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The work under this Item shall conform to the relevant provisions of Section 828 and 840 of the Standard Specifications and the following:

#### **GENERAL**

Work under this item shall include the dismantling, removing, transporting and stacking of the existing traffic signs as shown on the plans and as directed by the City.

The work shall include dismantling the signs, removing the posts, excavating the existing foundation, disposing of the concrete and posts, backfilling with compacted gravel of the holes resulting from the excavation and the replacement, in kind, of any surface material disturbed. All removed traffic signs in good condition as determined by the City shall be transported and stacked at the City's Maintenance Yard located at 110 Crafts Street. The Contractor shall exercise particular care in the dismantling, removal, transporting and stacking of the designated existing signs. Any sign panel designated for stacking and damaged by the Contractor shall be replaced at the Contractor's expense.

Signs selected to be disposed of will be disposed of by the Contractor as incidental to this item.

#### **BASIS OF PAYMENT**

Work under this item shall be paid at the Contractor bid prices per Each for Item 874.4 Sign Removed and Stacked, which price shall include full compensation of all labor, materials, equipment, dismantling, removing, transporting, and stacking of the signs, excavation and disposal of the existing foundations, supplying and backfilling with gravel and compaction, and all incidental costs required to complete the work. No separate payment will be made for the disposal of signs or removal of foundations or posts.

<b><u>ITEM 875.1</u></b>	<b><u>PARKING METER REMOVED AND RESET</u></b>	<b><u>EACH</u></b>
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The work under this Item shall conform to the relevant provisions of Section 828 and 840 of the Standard Specifications and the following:

## **GENERAL**

Work under this item shall include the dismantling, removing, transporting and resetting of the existing parking meter and installation of new parking meter posts and foundation as directed by the City. The work also includes removal and disposal of parking meter posts and the foundation.

The Contractor shall exercise particular care in the dismantling, removal, transporting and resetting of the existing parking meters designated to be reused. Any parking meters damaged by the Contractor shall be replaced at the Contractor's expense.

The parking meter posts shall be furnished and installed by the Contractor as directed by the City for the final locations as incidental to this item. The Contractor shall coordinate which parking meters are to be reset and their final locations as designated by the City.

The parking meter post and foundation installation shall be measured as one unit in place for each parking meter and included in this item.

## **BASIS OF PAYMENT**

Work under this item shall be paid at the Contractor bid prices per Each for Item 875.1 Parking Meter Removed and Reset, which price shall include full compensation of all labor, materials, equipment, dismantling of parking meters, removing and disposing for parking meter posts and foundations, furnishing and installing new post and foundation, resetting the parking meter on the new post, excavation and disposal of the existing foundations, supplying and backfilling with gravel and compaction, and all incidental costs required to complete the work.

## **ITEM 875.2**

## **PARKING METER REMOVED AND STACKED**

## **EACH**

The work under this Item shall conform to the relevant provisions of Section 828 and 840 of the Standard Specifications and the following:

## **GENERAL**

Work under this item shall include the dismantling, removing, transporting and stacking of the existing parking meter head as shown on the plans and as directed by the City.

The work shall include dismantling the parking meters, removing the posts, excavating the existing foundation, the disposal of the concrete and posts, backfilling with compacted gravel of the holes resulting from the excavation and the replacement, in kind, of any surface material disturbed. All removed parking meters shall be transported and stacked at the City's Maintenance Yard located at 110 Crafts Street. The existing meters and posts shall not be removed until the approved by the City. The Contractor shall exercise particular care in the dismantling, removal, transporting and stacking of the designated existing parking meters. Any parking meter designated for stacking and damaged by the Contractor shall be replaced at the Contractor's expense.

## **BASIS OF PAYMENT**

Work under this item shall be paid at the Contractor bid prices per Each for Item 875.2 Parking Meter Removed and Stacked, which price shall include full compensation of all labor, materials, equipment, dismantling, removing, transporting, and stacking of the parking meter head, excavation and disposal of the existing foundations, supplying and backfilling with gravel and compaction, and all incidental costs required to complete the work.

No separate payment will be made for the delivery of parking meters to the City's Maintenance Yard facility.

**ITEM 904.**                      **4,000 PSI, ¾ INCH, 610 CEMENT CONCRETE**                      **CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Section 900 of the Standard Specifications and the following:

**GENERAL**

Work under this item shall include furnishing and constructing concrete foundations for posts of the chain link fence to be reset or replaced as determined by the City. The size and depth of the foundation shall conform to the latest MassDOT Standard Construction Details E404.2.

**BASIS OF PAYMENT**

Work under this item shall be paid at the Contractor bid prices per Cubic Yard for Item 904. 4000 psi, ¾ Inch 610 Cement Concrete , which price shall include full compensation of all labor, materials, tools, equipment and all incidental costs required to complete the work.

**ITEM 999.**                                      **POLICE DETAILS**                                      **HOURLY**

**GENERAL**

Work under this item shall consist of the furnishing of Police Details at project locations as directed by the City. The decision to use a police detail at a specific project location shall be based upon the City's review of the Contractor's traffic plan for the location.

It is the Contractor's responsibility to cancel a Police Detail in a timely fashion. The City will not reimburse the Contractor for a Police Detail when the cancellation notice is not given in a timely fashion. Lateness or failure to show on the part of the Contractor or inclement weather shall not excuse the Contractor from the obligation to give adequate notice to the Police Department. Payment for Police Details not cancelled as required will be the responsibility of the Contractor.

**BASIS OF PAYMENT**

Payment for this item shall be at the contract unit price per Hour for Item 999 Police Details as stated in the bid documents and shall be based on reimbursement of cancelled checks from the Contractor for Police Details used on the project.

**END OF SECTION**